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REPORT

OF THE

FEDERAL TRADE COMMISSION

ON

COMBED COTTON YARNS

April 14, 1921

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WASHINGTON
GOVERNMENT PRINTING OFFICE
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LETTER OF SUBMITTAL.

FEDERAL TRADE COMMISSION,
Washington, April 14, 1921.

To the SPEAKER OF THE HOUSE OF REPRESENTATIVES.

SIR: Submitted herewith is a report on Combed Cotton Yarns made in response to a resolution of the House, April 5, 1920 (Res. No. 451, 66th Cong., 2d sess.), which treats of the increase in the prices of such yarns during the years 1914–1919, inclusive, in relation to the increases in the cost of raw cotton and of labor entering into their production.

The most important facts brought out in this inquiry, briefly stated, are as follows:

1. The country's total production of combed yarn is much less than that of carded yarn, but combed-yarn spinning is a very important branch of cotton manufacture. Its product includes the finest counts of yarn used in fine fabrics, thread, and lace, as well as the strongest coarse counts used in coarse fabrics, such as automobile tires.

2. Long-staple cottons that are used in combed-yarn manufacture comprise only about one-eighth of the total American cotton crop. In recent years there has been a large increase in demand for combed yarn, which has in turn resulted in increased demand and high prices for long-staple cotton. Domestic production of long-staple cotton has also increased, but not enough to obviate the necessity of supplementing American growth by importations, especially of the longest staples. Because of the increased demand for long staples, and their relative scarcity (partly due during the war period to reduction in cotton imports) there was a greater advance in the market prices of long-staple cotton than of short staple, especially in the last half of 1919, when the demand for combed yarns was at its highest.

3. The inquiry of the Commission into the costs, prices, and profits of the combed cotton-yarn industry involved an examination of the books of a number of combed-yarn manufacturers both in the North and the South for the years 1914–1919. The production of these companies was about 25 per cent of the country's total production of combed cotton yarns marketed as yarn in 1919, the only year for which total production of combed market yarns is known. The proportion covered was probably about the same for 1914, but it was considerably smaller for the intervening years (1915–1918), because for those years reports were secured from fewer companies.

4. Throughout the period of rising prices from 1916 to 1919 the average price realized for yarns advanced in about the same proportion as the average cost of cotton in yarns, but more rapidly than labor cost and other conversion costs, thereby resulting in

greatly increased profits from 1916 to 1919, inclusive. (Though the average selling prices realized by manufacturers increased greatly, their advance was less than the advance in the current market prices of yarns, because manufacturers followed their usual practice of selling a considerable part of their output on contracts for deliveries extending over considerable periods, and were therefore able to take advantage of spot prices on only part of their product.)

5. The profits realized by manufacturers, whether reckoned per pound or on investment employed, were lowest in 1914 and highest in 1917. Prices, however, were lowest in 1915 and highest in 1919. The earnings on total investment employed by eight companies were 6.6 per cent in 1914, 12.1 per cent in 1915, 25.6 per cent in 1916, 37.8 per cent in 1917, 26.6 per cent in 1918, and 25.7 per cent in 1919. They averaged 23.4 per cent on the total investment for the eight companies for the six years.

6. During the last half of 1919 prices advanced much more rapidly than costs and the profits realized were larger than during any other period of similar length from 1914 to 1919.

7. The price advance of the second half of 1919 was due to a very large demand for combed yarns, part of which was of a speculative nature. Manufacturers with full order books bid for the available supply of long-staple cotton, the prices of which followed yarn prices to very high levels, though relatively not so high as yarn.

8. Since May, 1920, there has been a great decrease in demand for all cotton manufactures, including combed yarns, in consequence of which the prices of both combed yarns and long-staple cottons have shown a heavy decline.

Respectfully,

HUSTON THOMPSON, *Chairman.*
NELSON B. GASKILL.
JOHN GARLAND POLLARD.
VICTOR MURDOCK.
JOHN F. NUGENT.

SUMMARY.

The Federal Trade Commission by a resolution of the House of Representatives (H. Res. 451, 66th Cong., 2d sess.) was requested to inquire into the increase in the price of combed cotton yarns during the years 1914–1919, inclusive, to ascertain the cause or necessity for and the reasonableness of increased prices during the period in relation to the increase in the cost of raw cotton and of labor.

COMBED YARN MANUFACTURE.

Combed cotton yarn spinning differs from carded yarn spinning only in the use of longer-staple cotton and by the introduction of the combing process, which improves the smoothness and tensile strength of the yarn by removing the shorter fibers and more fully parallelizing the remaining longer fibers. Combed yarns are more expensive to produce than carded yarns because of the higher quality of raw cotton used and because of the extra expense of the additional combing process and the extra loss of cotton in the form of waste resulting therefrom.

Combing is a necessary step only in the production of the finer yarns, but it is employed in making yarns for certain coarse fabrics, such as are used for the manufacture of automobile tires, airplane cloth, and the like, where strength is important, as well as in the production of the finest yarns for thread, laces, fine woven fabrics, and fine hosiery and knit goods.

The production of combed yarns is carried on mainly in New England and North Carolina. In both regions are found some yarn manufacturers who themselves use all their production of combed yarns in the manufacture of cloth in their own weaving mills; other combed-yarn manufacturers have no weaving mills, but produce their yarns exclusively for sale as yarn on the market. The number of companies engaged primarily in the production of combed yarns is small as compared to the number of companies making carded yarns, and few of those specializing in combed yarns, except those engaged exclusively in fine yarns, comb all of their product.

Since the production of combed yarns is confined largely to fine yarns and to medium coarse yarns for particular purposes, the volume of such yarns produced, measured in pounds, is small as compared with that of carded yarns. Not more than 12 or 15 per cent of the total quantity of raw cotton consumed in the United States is used in the manufacture of combed yarns. On account, however, of the uses made of combed yarns, the industry is a more important branch of cotton manufacture than its volume of production would indicate, and it is growing more important from year to year.

FLUCTUATIONS IN DEMAND.

The growth of the automobile-tire industry alone has been a large factor in the growth of combed-yarn spinning. To the increased demand for tire yarns there has been added an increasing demand in recent years for fine fabrics. These increased demands have brought about a situation in which the quantity of raw cotton best suited to combed-yarn manufacture has become scarcely adequate for the production of combed yarns. Formerly nearly all the cotton used for this purpose was 1⅛-inch staple or longer, but now 1$\frac{1}{16}$-inch staple is used to a considerable extent. This reduction of length of staple has been necessary in order to meet the demand for combed yarns.

From 1914 to 1919 the demand for fabrics made of combed yarns increased more rapidly than the domestic production of long-staple cotton, thereby laying the basis for extremely high prices for both long-staple cotton and for combed yarns. As the result of the increased demand, market prices of combed yarns and of long-staple cotton, from which they are made, advanced during the war period somewhat more, respectively, than carded yarns and the short-staple cotton from which carded yarns are made.

Normally a considerable part of the finest combed yarn used in the country had been imported, mainly from England. During the war these importations were reduced or entirely cut off, thereby increasing the demand on American spinners.

Following the armistice there was a marked slump in both cotton and yarn prices during the first half of 1919. This price decline was based largely on the feeling that the war being over conditions would promptly revert to something comparable with prewar times. Conditions hoped for, however, failed to develop, and during the last half of 1919 the pressure of demand for combed yarns, a part of which arose out of speculative activities of yarn and cloth jobbers and brokers, was so great that the market price of combed yarns advanced to unprecedented levels. Under the stimulus of these high prices manufacturers bid against each other for the available supply of long-staple cotton, with the result that the prices of such cotton advanced far more than those of short-staple, though not so much as combed yarns.

COSTS AND PROFITS PER POUND.

In order to obtain exact data as to the costs, prices, and profits of combed-yarn manufacturers the Commission examined the books of account of a number of representative companies. For the years 1914 and 1919 comparative data were obtained from 11 companies, and for the whole 6-year period annual data were obtained for 8 identical companies. The 11 companies produced in 1919 about 25 per cent of the total output of combed yarns marketed as yarns.

The relative increases in costs, prices, and profits differed for the two groups of companies in 1919 compared with those of 1914. For the smaller group of companies the average cost of sales per pound of yarn in 1919 was over two and a quarter times that of 1914, but the average price realized per pound was nearly two and a half times that of 1914, and the average profit per pound was nearly four times as great as in 1914. For the 11-company group the cost of sales in

1919 was nearly two and two-fifths that of 1914; but the average price realized was two and two-thirds times that of 1914, and the average profit realized per pound was nearly five and three-quarters times that of 1914.

The average selling price in 1919 increased over 1914 in about the same proportion as did the cost of raw cotton, which represents about 60 per cent of the total cost of sales; while labor and the other items of conversion cost did not increase so much as cotton. Hence, prices advanced considerably more than the total cost of sales, thereby laying the basis for the much higher profits per pound in 1919.

The average price realized by five companies for which complete semiannual cost and profit and loss statements were secured for 1919 increased in the second half of the year much more than costs, and consequently yielded profits per pound much greater than those of the first half of the year and probably greater than those of any other like period during the six years. During the second half of the year, for these five companies, the average cost of sales was 74.09 cents (11 per cent greater than the first half of the year); the average selling price per pound was 96.53 cents (25 per cent greater than in the first half); and profit per pound was 22.44 cents (over twice that of the first half of the year).

Owing to the fact that manufacturers contract a considerable part of their product in advance, the average prices realized did not advance as much as quoted market prices. In 1919 the average prices realized by the two groups of companies were for the 8 companies 148 per cent higher than in 1914, and for the 11 companies 166 per cent higher, while the average quoted market prices for 17 typical yarns were 245 per cent higher in 1919 than in 1914.

PROFITS ON INVESTMENT.

During the period from 1914 to 1919 the total capital investment used in the yarn business by the 8-company group increased from $3,247,326 in 1914 to $5,131,320 in 1919, an increase of 58 per cent. During the same period the number of spindles operated by the eight companies increased from 161,780 in 1914 to 188,340 in 1919, an increase of but 16.4 per cent. Consequently the increased capital investment was due less to the installation of new equipment than to larger inventory values of raw cotton, stock in process, and finished yarns, and to the increased amount of customers' accounts that it became necessary to carry as the prices of raw cotton and yarns advanced.

Although capital invested showed an increase of 58 per cent, the profits of the yarn business in 1919 were such as to yield a percentage of net profit on investment several times greater than in 1914. For all companies covered in the inquiry the rate of net profit before paying interest on borrowed money or income or excess-profits taxes, to the total capital invested, including capital stock, surplus, and borrowed money, but excluding outside investments, was 4.2 per cent in 1914 and 31 per cent in 1919. For the smaller group of eight identical companies for which data were secured for all six years the increase in rate computed on this basis was from 6.6 per cent in 1914 to 25.7 per cent in 1919. For the six-year period the average rate of earnings for the latter group was 23.4 per cent. The mill village

investment of those companies owning housing facilities for their operatives has been included as a part of the investment in the yarn business.

Computed on another basis, namely, that of net profit on the stockholder's investment, including capital stock and undistributed surplus, but excluding outside investments, the rate of earnings for all companies (before paying income and excess-profits taxes, but after the deduction of interest paid on borrowed money) increased from 3.2 per cent in 1914 to 43.4 per cent in 1919. For the eight identical companies running through the six years the rate increased from 6.6 per cent in 1914 to 32.7 per cent in 1919, and averaged 29.6 per cent for the entire six years.

The first effect of the war as reflected in the costs, prices, and profits of the 8-company group for the year 1915 was a considerable reduction in all costs. As compared to 1914 the average cost of sales per pound decreased 15 per cent, the average price realized per pound decreased somewhat less (12 per cent), and the average profit realized per pound increased 15 per cent. Failure of prices to decrease as much as cost of sales accounts for the increase in average profit per pound. During the remaining years costs and prices show increases in each year from 1916 to 1919, inclusive.

Throughout the years from 1915 to 1919 cotton cost, comprising, as stated above, over 60 per cent of the total costs of sales, shows larger increases in each year than any other item of cost. Throughout the six years also the tendency was for prices to keep pace in their advance with the advance in cotton cost. During 1916 and 1917 the average price realized advanced relatively even more than cotton cost and in 1918 and 1919 slightly less than cotton. In thus closely following the item of cost showing the greatest increase, prices for the period as a whole advanced more rapidly than the total cost of sales.

Although average prices were at their highest point for the eight companies in 1919, average profit, whether measured in terms of average profit per pound, per dollar of sales, or per dollar of capital invested in the yarn business, were greatest for the year 1917. During both 1918 and 1919 the prices realized were markedly greater than in 1917, but the price advances of the last two years were attended by even greater advances in costs, the greater part of which advances occurred in cotton and labor.

DECREASED DEMAND—1920.

Since May, 1920, there has been a period of great decrease in demand for combed-yarn products. The prices of combed yarns and long-staple cotton have moved sharply downward, cotton being now at less than the prewar level, though yarns are still considerably above it. Because of this market condition, combed-yarn spinners have greatly reduced their production.

As prices of raw cotton and yarns fell manufacturers apparently tried to work off the stocks of raw cotton and yarn acquired during the period of high prices in such a manner as to result in the least possible loss. Owing to the strong financial condition of these manufacturers generally, arising out of large earnings during the period of high and advancing prices, the losses resulting from this period of decline in prices appear to have been absorbed without any widespread difficulties or failures.

COMBED COTTON YARNS.[1]

CHAPTER I.

INTRODUCTION.

ORIGIN OF THE INQUIRY.—The inquiry into the costs and prices of combed cotton yarns, the results of which are embodied in this report, was undertaken by the Federal Trade Commission pursuant to the following resolution of the House of Representatives of the United States:

Resolved, That the Federal Trade Commission is hereby requested to inquire into the increase in price of combed cotton yarns during the years 1914 to 1919, inclusive, and especially during the last six months of the year 1919; to ascertain the cause or necessity for and the reasonableness of such increase; to ascertain the difference between the increase in the price of the yarn on the one hand and the increase in the cost of raw cotton and the labor entering into the cost of the manufacture of such yarn; and to report to the House at the earliest practicable date the result of the investigation.[2]

SCOPE OF THE INQUIRY.—To attempt to cover comprehensively the total number of firms specializing in the production of combed yarn for the market would have been an undertaking the results of which would not have justified the expenditure of time and money required. Instead a number of firms that are important factors in combed market-yarn production were selected and reports were secured from the following 14 firms, 8 of which are located in North Carolina and 6 in New England:

Arlington Cotton Mills	Gastonia, N. C.
Amazon Cotton Mills	Thomasville, N. C.
Dresden Cotton Mills	Lumberton, N. C.
Dunn Manufacturing Co	Gastonia, N. C.
Fitchburg Yarn Co	Fitchburg, Mass.
Jewell Cotton Mills	Thomasville, N. C.
Jenckes Spinning Co	Pawtucket, R. I.
Lenoir Cotton Mill	Lenoir, N. C.
Manomet Mills	New Bedford, Mass.
Morowebb Cotton Mills Co	Dallas, N. C.
New Bedford Spinning Co	New Bedford, Mass.
Nonquitt Spinning Co	New Bedford, Mass.
Orswell Mills	Fitchburg, Mass.
Peerless Manufacturing Co	Lowell, N. C.

In choosing these companies an attempt was made to insure their representativeness of the industry as a whole by choosing large and small mills manufacturing coarse, medium, and fine combed yarns in the North and the South. Of the 14 reports secured from the mills named above, 12 were found usable for some part of the ensuing discussion. The reports of 11 of the 12 yielded data as to costs, prices, and profits for 1919, comparable with those of 1914.

[1] Subsequent to the presentation of this report to Congress in manuscript, a few minor changes in text and figures were made in the copy submitted to the printer.
[2] H. Res. 451, 66th Cong., 2d sess.

According to preliminary data furnished by the courtesy of the Bureau of the Census, the total quantity of combed cotton yarn marketed as yarn by the manufacturer in 1919 was 135,834,956 pounds. The quantity produced by the 11 companies for which costs are shown in this report was 33,371,590 pounds for the same year, or 24.6 per cent. The proportion of total combed market-yarn production covered by this report for 1914 was probably about the same as for 1919, but was considerably less for intervening years because data were secured from fewer companies for the years 1915 to 1918, inclusive.

ATTITUDE OF YARN MANUFACTURERS TOWARD THE INQUIRY.—In conducting the inquiry access was requested to the accounts and records of the various companies for the compilation of the data desired by agents of the Commission. In the South, manufacturers generally showed little or no hesitation in complying with the request that access be given to their books, and officials of the companies visited generally accorded marked assistance to the agents of the Commission in the form of explanations and information of value in the compilation and analysis of reports.

In New England the spirit of cooperation was less general. Some New England manufacturers gave free access to their books upon request and afforded valuable assistance in expediting the work of compiling data, which, from the complicated nature of the manufacturing process and the length of the period covered, necessarily required considerable time. Other New England manufacturers were indisposed to open their books and records to agents of the Commission and in some cases denied the Commission's right to compile data directly from their books. This attitude was based upon the fact that in the Maynard Coal Co. case and the Clair Furnace Co., et al. (steel) case the Commission's legal power to require manufacturers to submit periodic industrial reports covering production, costs, and financial data in the coal and steel industries has been questioned. Final review of these two cases is now pending in the courts.

The general attitude of yarn manufacturers who were averse to the inquiry was that the coal and steel cases established the view that manufacturing is strictly intrastate in character, and that therefore the Commission has no legal right under the commerce clause of the Constitution either to require periodic reports or to require access to the books of the manufacturers for the purpose of compiling information therefrom. Proceeding on this basis, those manufacturers who were most averse to the inquiry denied access to their books. In one case this was done after the Commission's agents had had access to the books for some time and had made considerable progress in securing the data desired.

Negotiations to remove the opposition of certain manufacturers consumed a great deal of time, and even in those cases in which they were most successful resulted in only moderately effective arrangements for securing the data desired for certain of the years covered by the resolution. In one case, that of the Sharp Manufacturing Co., of New Bedford, Mass., at which work was begun by agents of the Commission and subsequently stopped at the request of the officials of the company, further negotiations were not pushed at all. In another, that of the Quissett Mill, also of New Bedford, of which William M. Butler is president, arrangements were made under which the company's accountants began work on a report to be submitted by the

company. This work was subsequently suspended and no report submitted, the principal reasons given by Mr. Butler for stopping the work being the amount of time required to make the report, the fact that not all combed-yarn mills of the section were reporting, and the alleged uselessness of the information if compiled, owing to the radical change that occurred in conditions affecting the manufacture and sale of combed yarns during the last eight months of 1920. In addition to the delays encountered, this opposition of manufacturers has been a factor in making it impossible to secure data for all six years from a larger number of companies.

LOCATION OF THE COMBED MARKET-YARN INDUSTRY.—Geographically the production of combed market yarn in the United States is concentrated very largely in two districts—one in New England and the other in North and South Carolina. In both sections production is carried on by mills more or less widely separated in location, though the production of combed market yarn is centered largely in two cities, New Bedford, Mass., and Gastonia, N. C.

Characteristic differences between New England and the South.—Certain characteristic differences in conditions as to the size of mill units, character of labor supply, and the form of industrial and social organizations in the two sections are so important as to merit some discussion.

In New England the industry is older and more firmly established. It is carried on by larger units of capital in larger manufacturing cities, to which immigration furnishing the main source of labor supply naturally gravitates. Such conditions favor the development of large factory units. In the South the industry is comparatively young and still in its developmental stage. It is carried on by smaller organizations of local capital in small country towns and villages, to which the industry goes to secure its labor supply, drawn mainly from the native white population. Such conditions favor the development of many small mill units. The resultant difference in size of mills is strikingly shown by the fact that the New England mills visited vary in size from about 25,000 spindles to 200,000 spindles per mill, while the southern mills visited range from 7,000 spindles to 25,000 spindles each. Although there is at present an increasing tendency for labor to move to the older production centers of the South, the general direction of expansion for even the largest aggregations of southern capital has been, and still is, to build new mills in locations that promise new supplies of both local capital and labor rather than to expand their existing plants in the older centers.

Throughout the industry there is a more or less general tendency for the mills to confine their production to a comparatively small range of counts. This is more strikingly true of the smaller southern mills than of the larger New England mills, which, with the exception of those that specialize wholly on a few counts of yarn for particular uses, such as automobile tires and other special manufactures, generally make a wider range of counts per mill than their southern competitors. Then, too, the finer counts of yarn made in America are generally made in New England mills, where mule spinning is carried on in a limited way, and is generally employed only on the finer counts of yarns. Mule spinning is an intermittent production process requiring more skilled, and therefore higher paid labor than

the more common method of ring spinning. The yarn spun is more uniform in weight and in tensile strength, but the cost per pound is greater on account of the somewhat lower rate of production and the higher wages paid to mule spinners. Southern production, furthermore, is confined almost entirely to two general classes of cotton staples, namely, various lengths of peeler and sea-island cotton, while the New England mills use peeler, sea-island, imported Egyptian, and Peruvian staples.

Another factor affecting the comparative costs of production between the North and the South is the fact that wage rates in the South are generally less than in the North. This advantage for the southern manufacturer is somewhat counterbalanced, however, by the fact that the southern mill units generally own a considerable number of dwelling houses occupied by their employees. The houses are often rented to the operatives at such low rentals, including in some cases electricity for lights, that the total rent income sometimes does not pay the upkeep of the mill village property.

Besides providing houses, the southern mills are in many cases spending considerable amounts in welfare work, including the building of community centers with cafeterias, reading rooms, halls, playgrounds, and other facilities for healthful sports, social intercourse, and amusement. Consequently, while in the South the actual labor cost per pound is less, the total cost per pound carries an item for village expense that does not appear in the New England costs, and a larger item for welfare work per pound than is found in the New England costs. Both of these items tend to offset the higher wage cost per pound in New England.

Impracticability of presenting results by geographic location.—Although it would be desirable to discuss separately the costs and financial results for New England and southern mills, this report discusses the mills of both sections as a single group. This is done because, owing to difficulties met in securing data in New England, the number of mills covered in certain years is comparatively small.

CHAPTER II.

THE COMBED COTTON YARN INDUSTRY AND ITS RAW MATERIALS.

INTRODUCTORY.—The production of combed cotton yarns is carried on not only by mills devoted exclusively to market yarn production, but by the spinning departments of weaving mills as well. Furthermore, mills that are equipped to spin combed yarns can produce carded yarns equally well, and will shift from combed to carded or vice versa in response to the demands of the market. Consequently it is impossible to estimate with any degree of accuracy the percentage of the country's spindlage that is engaged in combed cotton yarn production. The production of both combed and carded yarns with the same equipment complicated the question of securing accurate costs for combed yarns, and of discussing earnings of combed yarns manufactured in relation to their investment, for the reason that it was impossible to segregate exactly either carded yarn costs or the investment engaged on carded yarns from total mill costs and total mill investment. For the results shown herein regarding average costs and profits per pound of combed yarns this fact involved no material inaccuracies in average costs per pound. Such inaccuracy as does result is small because the proportion of the total production represented by carded yarns, and the difference in their cost, as compared with the same sizes of combed yarns, though appreciable, is not large. Furthermore, the small percentage of error introduced is about the same from year to year because the proportion of carded yarns to the total is about the same for each group of companies in each year.

Many cloth mills and most knitting mills buy a large part of the combed yarns they use, thus providing a market outlet for the product of spinning mills that produce combed yarns exclusively or in part, as well as for yarns produced by weaving mills having excess spinning capacity over and above that required to supply their own needs. Consequently there have developed well-defined yarn markets in Boston, New York, and Philadelphia handling sufficient volume of combed yarns to warrant trade papers in carrying combed yarn price quotations more or less continuously.

THE PROCESS OF MANUFACTURE.—Yarn, the product of the spinning frame, is the final result of a number of machine processes all of which are for the purpose of preparing the stock for spinning. In the production of combed yarns the cotton is passed successively through the processes of picking, carding, sliver and ribbon lapping, combing, drawing, slubbing, and roving. The picker-room processes, including the opener, breaker picker, intermediate picker, and finisher picker, remove sand and other foreign material from the stock, and by frequently repeated doublings produce a sheet or lap of uniform weight throughout its length. The card continues the cleaning process, removes short fibers, and begins the process of parallelizing

the fibers. Sliver and ribbon lapping continue the doublings to produce uniformity in weight of the stock as well as to put it into the form of a narrow lap or sheet preparatory to combing. The comber, as its name implies, combs the stock to remove short fibers, tangled fibers, and impurities that escaped the preceding processes, and further parallelizes the fibers. The drawing frames subject the stock to more doublings and drawings to produce a strand of uniform weight. The slubber and roving frames continue the doubling and drawing and reduce the strand to the size desired for spinning. The spinning frame further draws out the stock to the exact size desired and adds twist to make it a yarn.

Two types of spinning frames are used, the ring frame and the mule frame. The mule frame, which is the older type of machine, is used far less than the ring frame, and its use is decreasing year by year. In 1919 the Bureau of the Census reports but 9.6 per cent of the total spindlage of the country to be mule spindles. For the companies covered in this report the percentage is somewhat larger, but is decreasing. In 1914 the mule spindles operated by the 11 companies covered amounted to 15 per cent of their total spindlage, while in 1919 for 12 companies the percentage was 11.6 per cent. In the intervening years for a smaller number of companies the percentage of mule spindles was less than that stated above for the year 1919.

After being spun the yarn is subjected to one or more of a number of processes including spooling, twisting, warping, reeling, and winding. All these machine processes subsequent to spinning (except twisting) are for the purpose of putting the yarn into the form desired for shipment. Each method of putting up for the market requires its own special machinery. The product of the spinning frame commonly spoken of as single yarns, or "singles," may be put up for the market in a variety of ways, of which beam warps, ball warps, tubes, cones, and skeins are the forms most generally used. Warps are spooled preparatory to beam warping or ball warping, while for the other methods of "put up" the yarn is usually wound in the form desired directly from the spinning bobbin. If ply yarns are to be made, the single yarn is first spooled and then two or more strands are twisted together by the twister frame, after which it may be prepared for shipment in any of the variety of ways outlined above for single yarns.

Various other processes not essential to the production of the yarn, but necessary to secure the kind of finished yarn desired, may be introduced in the stages prior to packing or later. For instance, the cotton may be dyed or bleached in the stock before it is put through the yarn processes outlined above, or the finished yarn may be dyed, bleached, gassed, mercerized, or otherwise treated before being shipped. Combed market yarns, however, are most often spun and shipped in the natural color of the cotton (i. e., "in the gray"), leaving the dyeing and special processing to yarn-finishing firms or to the purchaser's yarn-preparation department.

Size or "count" of cotton yarns.—Cotton yarns are produced in a wide range of sizes, weighing from 1 avoirdupois pound or more to the hank of 840 yards for the coarsest to one three-hundredth or even one four-hundredth of a pound to the 840-yard hank for the finest. The size of a yarn as it comes from the spindle is

fully specified when the "count" or number of hanks required to weigh 1 pound is specified. Thus, if 1 hank of a given yarn weighs 1 pound, its size or count is 1; if 10 hanks are required to weigh 1 pound, its size or count is 10; and so on up to the finest, for which the count may be 300 or even 400. Although yarns are spun commercially up to 300's, or even 400's, few American mills spin above 125's or 150's, and most mills do not spin above 120's filling and 100's warp yarn.

The spinning frame produces a "single" or one-ply yarn the size or "count" of which is determined by the size of the strand of cotton ("roving") from which the yarn is spun and the amount of "draft" or elongation accomplished by the drawing rolls of the spinning frame. The yarns spun may be of varying degrees of "hardness," which in turn depends upon the number of twists per inch imparted to the yarn in the spinning process. The number of twists is generally expressed in terms of a number of times the square root of the "count" of the yarn. The twist varies from about two or two and one-half times the square root of the count for the softest yarn to seven or more times the square root of the count for the hardest yarn. For instance, a 36 filling yarn (which is a relatively soft yarn) would have about 18 or 20 twists (i. e., about three and one-half times the square root of 36) to the inch, while a 36 warp yarn (which is harder than filling yarn) would have about 28 or 30 (i. e., about five times the square root of 36) twists to the inch. Harder twists would be expressed by increasing the number of times the square root of the count.

Variations in spinning cost of cotton yarns.—Aside from any difference in cost that may arise out of the use of different grades of raw cotton, the spinning cost of producing fine yarn is greater than that for coarse yarn on account of the greater length of time required to produce a pound of fine yarn. Not only must a greater length of material be handled in fine yarns, but a greater number of twists per inch must be imparted to the stock. If it were possible to use the same speed of drawing rolls for coarse and fine yarns and increase the spindle speed to fully compensate for the increased number of twists imparted, the rate of production would vary directly with the length of stock handled. This, however, is a physical impossibility, owing to the fact that in increasing spindle speed a point is reached at which excessive breakage of the yarn results. Consequently, although higher spindle speeds normally are used on fine than on coarse yarns, the speed of the drawing rolls must be reduced on fine counts to prevent undue breakage. This results in a reduction in production rate of fine as compared to coarse yarns greater than the difference in length handled. Consequently the spinning cost of fine yarns is higher than that of coarse yarns, both on account of the greater length of stock that must be handled and also on account of the relatively slower machine speeds used.

In the spinning of soft-twist yarns machine speeds differing from those used in the production of hard-twist yarns may be used and somewhat larger production per spindle obtained. This would indicate a slightly smaller spinning cost per pound for soft-twist yarns. Statements of millmen vary as to whether this difference in cost is appreciable in the manufacture of combed yarns. At most the dif-

ference is small, and its accurate determination from actual mill practice would necessitate far more detailed cost keeping than most mills attempt. Consequently no attempt is made, either by the mills or in this report, to take into consideration in any way variations in spinning cost as between warp and filling or other types of yarn determined by the number of twists per inch. It is, however, to be recognized that market yarn manufacturers vary the type of yarn manufactured from time to time in accordance with the requirements of the purchaser, who in placing his order stipulates the degree of twist desired in accordance with the use to which the yarn is to be put in the manufacture of different types of cloth, knitting, thread manufacture, and the like.

Production rates and costs vary with the count at practically every stage in the manufacture of yarn in a manner similar to that outlined for spinning. In most departments the variations, however, are much less pronounced than in the spinning department. Further discussion of this subject will be found in Exhibit VI.

In the spinning of combed yarns, mill practice as to machine speeds used was found to vary considerably from mill to mill. Although there appeared to be no standardized practice used by mills visited, it was generally true that the use of longer staple cotton in the production of combed yarns enables the mills to use comparatively high machine speeds and thereby attain somewhat greater productions per spindle than is possible when shorter staples are used. Any saving in spinning cost that may result therefrom, however, is more than offset by the added cost of the combing process and the greater loss of cotton in the form of waste produced in combing.

Difference between combed and carded yarns.—Combed cotton yarns differ in manufacture from carded yarns only by the introduction of the added processes of sliver lapping, ribbon lapping, and combing. Carded yarns may be made of any length of staple, whereas combed yarns are generally made of cotton of $1\frac{1}{16}$-inch, or longer, staple. The added process of combing removes "neps" or bunches of tangled fibers and short fibers and causes the naturally kinky fibers to lie more nearly parallel. The added processing required to comb the stock results in added labor cost and greater loss of material in the form of waste, thereby making combed yarns more expensive to manufacture than carded yarns, and in addition the long-staple raw cotton used in combed yarns costs the manufacturer more than the shorter staple stock generally used for carded yarns.

Combing is not necessary to the production of coarser yarns, but the process so increases the smoothness, uniformity in weight, and tensile strength of yarns produced that, in spite of the added cost, it is resorted to in the manufacture even of coarse yarns for particular purposes, such as automobile tire fabrics and other uses requiring yarns of maximum tensile strength. In the manufacture of fine yarns combing becomes more and more necessary, the added cost being more than counterbalanced by the improved spinning quality of the combed stock. For the finest counts uniformity in length of staple becomes so important that the stock is double combed, thereby adding greatly to the loss of stock as well as to the labor cost. The production of such yarns in the United States is

negligible, most of the very fine yarns being imported, mainly from England.

RAW MATERIAL USED.—American-grown cottons most suitable for combed-yarn manufacture consist of upland "peeler" cotton of $1\frac{1}{16}$-inch to $1\frac{5}{16}$-inch or longer staple, grown mainly in the Mississippi Delta, sea-island cotton of $1\frac{1}{2}$-inch to $2\frac{1}{2}$-inch staple grown along the coasts of Florida, Georgia, and South Carolina, and American-grown Egyptian cotton produced in Arizona, southern California, and adjacent territory in Mexico but ginned and marketed in the United States. Of these three kinds, peeler cotton is the largest in quantity. Until recently sea-island cotton furnished the next largest portion of the total domestic long-staple crop, but recent ravages of insect pests have caused a marked decrease in its production to such a point that the growth of American-Egyptian cotton in the Southwest (which may be said to have begun in 1912) amounted to over eight times the production of sea-island in 1919.

Prior to 1915 the reports of the Bureau of the Census do not show long-staple upland production segregated from the total upland cotton production; consequently no attempt can be made to ascertain the total volume of long-staple cotton available for domestic consumption in the years before 1915. The following table, which is compiled from the figures of the Bureau of the Census, shows the total domestic production of long-staple upland, sea-island, and American-grown Egyptian cotton as well as the imports of foreign-grown Egyptian cotton for the years 1915 to 1919, inclusive. With the exception of a small quantity of long-staple cotton imported from Peru and other foreign sources, the combined quantity of the above-named varieties of cotton shown in the table represents the total supply of long staples from which American manufacturers can draw their raw material for the production of the highest grades of both combed and carded yarns.

TABLE 1.—*Total production of long-staple cotton in the United States and imports of Egyptian cotton, by years in which crop was grown, 1915 to 1919, inclusive.*

(All quanties are in 500-pound bales.)

[Compiled from publications of the Bureau of the Census, Department of Commerce.]

Year.	Total United States growth and imported Egyptian.	American-grown long-staple.						Imported Egyptian.[1]	
		Upland 1⅛-inch and over.		Sea-island.		American-Egyptian.			
		Bales.	Per cent of total.	Bales.	Per cent of total.	Bales.	Per cent of total.	Bales.	Per cent of total.
1915	1,255,071	832,000	66.3	71,180	5.7	1,095	0.1	350,796	27.9
1916	1,305,223	1,009,000	77.3	93,000	7.1	3,331	.3	199,892	15.3
1917	1,556,526	1,354,000	87.0	71,980	4.6	15,966	1.0	114,580	7.4
1918	1,540,249	1,359,000	88.2	40,900	2.7	40,343	2.6	100,006	6.5
1919	1,538,386	1,006,000	65.4	5,008	.3	42,374	2.8	485,004	31.5

[1] Imports from crop of the years shown.

The quantities shown in the table for American growth are the quantities produced in the crop year indicated and, consequently, available for distribution in the cotton year beginning August 1 of the year in which grown and ending July 31 of the year following.

The imports of Egyptian cotton shown are the quantities imported from the crop of the year shown and, like the figures given for American growth, are the quantities available for consumption in the ensuing year.

The total supply of long-staple cotton increased considerably during the period covered by the table. Long-staple upland represents by far the largest part of the total supply, and it is in this variety that the greatest increase in supply occurred. Imports of foreign-grown Egyptian, which normally represent the next largest part of the supply, decreased sharply during 1916, 1917, and 1918, but increased sharply in 1919. Sea-island, which in 1915 was the third in importance, fell sharply to a very minor position in 1918 and 1919 on account of the inroads of insect pests in the limited area suitable to its production, while American-grown Egyptian, the commercial production of which began about 1912, increased to such a point that in 1919 its production was eight times that of sea island.

The table indicates that from 1915 onward the volume of raw cotton of 1⅛-inch staple and over, from which American spinners might draw their supply, averaged something over 1,429,600 bales, or some 714,800,000 pounds of cotton. Not all of this cotton is consumed in domestic manufacture. Each year a certain quantity of the longest staple is exported, but figures are not available for exports other than sea island. Consequently it is impossible even to estimate the total volume exported.

During recent years the pressure of demand for combed yarns has been so great that manufacturers have been compelled to resort to the use of shorter and shorter staples in the manufacture of combed yarns, consequently a considerable volume of combed yarn has been made of 1 1/16-inch staple. This cotton is not included in the above tabulation, as it is included in the Bureau of the Census figures under the classification of short-staple cotton.

Just how small a percentage of the country's total production of cotton is best suited to combed yarn manufacture is shown by the following table presenting statistics of the total lint cotton production of the United States for the years 1913 to 1919, inclusive, as reported by the Bureau of the Census. The total production is segregated to show the percentage of the total crop falling under the classifications of short-staple upland (under 1⅛ inches), long-staple upland (1⅛ inches and over), and sea island and American-Egyptian combined.

TABLE 2.—*Total lint cotton production of the United States, by years, 1915 to 1919, inclusive, segregated to show short-staple upland, long-staple upland, and sea-island and American-Egyptian combined.*

(All quantities are in 500-pound bales.)

[Compiled from publications of the Bureau of the Census.]

Year.	Total number of bales.	Short-staple upland (under 1⅛-inch staple).		Long-staple upland (1⅛-inch and over).		Sea-island and American-Egyptian.	
		Number of bales.	Per cent of total.	Number of bales.	Per cent of total.	Number of bales.	Per cent of total.
1915	11,191,820	10,287,545	91.9	832,000	7.4	72,275	0.7
1916	11,449,930	10,344,599	90.3	1,009,000	8.8	96,331	.9
1917	11,302,375	9,860,429	87.2	1,354,000	12.0	87,946	.8
1918	12,040,532	10,600,289	88.0	1,359,000	11.3	81,243	.7
1919	11,420,763	10,367,381	91.2	1,006,000	8.4	47,382	.4

Since 1915, the first year in which long-staple upland and short-staple upland figures were separated by the Bureau of the Census, short-staple upland has amounted to from 87.2 per cent to 91.9 per cent of the total cotton production of the country; long-staple upland to from 7.4 to 12 per cent, and sea-island and American-Egyptian combined to from 0.4 to 0.8 of 1 per cent of the total production.

Although there has been a marked increase in the production of long-staple upland cotton in the years following 1915, on the average only 9.6 per cent of the country's total production during the years 1915 to 1919, inclusive, falls in this classification. When to this is added the comparatively small production of sea-island and American-Egyptian cotton, never more than 0.8 of 1 per cent in the five-year period 1915 to 1919, inclusive, the total production of long-staple cotton most suitable to the manufacture of combed yarns averaged only 1,179,635 bales, or 10.27 per cent of the Nation's total cotton production. This possible supply of 1,179,635 bales is reduced by exportations, the volume of which, as stated above, it is impossible to accurately determine.

The figures of the Bureau of the Census show that the average domestic consumption of all lengths of staple in the United States for the cotton years 1916 to 1920, inclusive, was 7,121,622 bales. Figures from the same source show the total annual production and imports of long staples (consisting of American grown long-staple upland, sea-island, and American-Egyptian and imported Egyptian) amounted on the average to 1,429,691 bales. Even assuming that all of this cotton was consumed in America, the consumption of long-staple cotton would amount to but 20.2 per cent of the total domestic consumption of raw cotton. After making allowance for exports of long staple and for long-staple cotton used in the production of carded yarns, it is probable that not more than 12 per cent of the country's total consumption of cotton is represented by long staples used in the manufacture of combed yarns.

Although the production of combed yarn is limited by the quantity of staple most suitable to its manufacture produced in and imported into the country, the combed-yarn branch of the spinning industry is of greater importance than the percentage of raw material consumed would indicate. Combed yarns are used in the manufacture of the finest cotton hosiery and underwear, in fine woven goods such as dress goods, lingerie, etc., as well as in the coarser fabrics used in automobile tires and other manufactures. The increase in tire production alone has introduced a new and constantly growing demand for long-staple cotton in recent years. Increased demand for combed yarn products has been reflected in higher prices for long-staple cotton and wider differentials in price than previously existed between short staples and long staples.

Greater demand for long-staple cotton yarn has resulted in increased production and consumption of peeler and American-Egyptian cotton, the latter variety being absorbed almost entirely by the automobile tire industry.

Sea-island cotton consumption was limited in the years 1917, 1918, and 1919 by the smallness of the crop. (See Table 1.) Even prior to the decrease in sea-island production domestic consumption of sea-island cotton was increasing and exports decreasing. For the four years, 1909–1912, inclusive, sea-island exports averaged about

20,000 bales annually. In 1913 exports fell to 10,003 bales, in 1914 they increased to 13,917 bales, and since that time they have decreased. Later export figures are as follows: 1915, 5,824 bales; 1916, the last normal sea-island crop year, 3,580 bales; 1917, 1,844 bales; 1918, 2,235 bales, and 1919, 3,806 bales. Although there are no statistics available for either domestic consumption or exports of long-staple upland cotton segregated from upland cotton in general, it is probable that the tendency has been for domestic consumption of long-staple upland also to increase more rapidly than its production.

GROWTH OF THE INDUSTRY.—The combed yarn industry underwent a period of rapid growth from about 1900 to 1910. From 1910 to 1914, inclusive, growth, so far as may be evidenced by the number of new incorporations of companies manufacturing combed market yarns, appears to have been less marked. The consumption of combed yarns in the tire, hosiery, and knit goods, and woven goods industries, however, increased so rapidly as to put a heavy burden on the limited production of long-staple cotton. Since 1914 the growth in the spindlage engaged on combed yarns has been rapid, though less soundly grounded, based as it was on the stimulation of war-time prices and demand.

SUMMARY.—To sum up briefly, the combed cotton yarn industry is a branch of cotton manufacture for which accurate statistical data as to volume of cotton consumed and volume of product manufactured are extremely difficult to obtain. Although it represents in poundage of cotton used, including some allowance for staples less than $1\frac{1}{8}$-inch used in combed yarns, probably less than 15 per cent of the cotton consumed in the United States, it is, nevertheless, a highly important and growing branch of the cotton spinning industry. From 1914 to 1919, inclusive, the increased demand for its products has been more rapid than the domestic production of long-staple cotton, thereby laying the basis for extremely high prices for both long-staple cotton and combed yarns.

Chapter III.

MARKET PRICES OF RAW COTTON AND COMBED YARNS.

Effect of the war on cotton exports.—For a number of years prior to 1914 from 63 to 67 per cent of the raw cotton crop of the United States, including linters, was exported. The outbreak of the war promised to greatly curtail these exports, and in consequence of this anticipated effect the price of cotton on the cotton exchanges in New York and New Orleans fell sharply. So great was the disturbance of the cotton market that these two exchanges ceased operations for three and a half months beginning August 1, 1914. On November 16, when they again opened their doors, the spot price of middling upland cotton had fallen on the New York exchange from 12.50 to 7.75 cents per pound.

The disturbance of world commercial relations caused a sharp decrease in the American cotton export trade. Only 53 per cent of the crop of 1914 (which was just about to be harvested when the war broke out) was exported, as compared with about 65 per cent in pre-war years. Exports from crops succeeding 1914 were as follows: 53 per cent for the crop of 1915; 47 per cent for the crop of 1916; 37 per cent for the crop of 1917; 44 per cent for the crop of 1918; and 56 per cent for the crop of 1919.

Effect of the war on American cotton manufacture.—The immediate effect of the outbreak of the war on American cotton manufacture, including the combed yarn branch of the industry, was to create a period of uncertainty and hesitancy, during which yarn and cloth prices reacted downward with the fall in raw cotton prices in the autumn of 1914. This effect was only temporary, however, as domestic consumption of lint cotton during the cotton year ending July 31, 1915, was greater by 19,954 bales than in the previous year, indicating a quick revival of activity in response to increased demand as soon as the disturbance arising out of interrupted raw cotton exports had subsided and the prices of raw cotton and cotton goods became established at lower levels. During the ensuing cotton years ending July 31, 1916, 1917, and 1918, the demand for cotton manufactures, especially for export, materially increased the domestic consumption of lint cotton. In the cotton year ending July 31, 1919, there was a falling off in demand for coarser goods and war munitions and supplies, which resulted in a decrease in consumption of lint cotton. Owing to the turning of spindlage no longer used for coarser goods to the production of fine yarns requiring proportionately less cotton, this decrease in raw cotton consumption was accomplished without material decrease in the number of active spindles.

The clothing and equipping of the American Expeditionary Forces required a very large quantity of cotton goods. So great were the demands for war purposes that a large part of the country's spindles were turned to Government orders at some time during the period from the middle of 1917 to the end of 1918. The employment of

mills on Government orders reduced the spindlage available to supply home consumption and the increasing export demand. Although there undoubtedly was a tendency for domestic consumption of certain types of cotton manufactures to decrease, on account of the transfer of many men from civilian to military life, the result of the transfer was to place a greater burden on the manufacturing capacity of the country, as their equipment and maintenance in military service required more cotton goods than they would have needed as civilians. The Government demand for coarse goods such as duck, denim, and twills became so great that strict control of production and distribution of such goods, amounting practically to commandeering of mills on the part of the Government became necessary in 1918. Export demand for finished cotton goods also increased as countries that normally purchased goods from Europe, finding their former sources of supply more or less completely cut off, turned to the United States for supplies. In consequence of increased Government orders and increased export demand, prices began advancing rapidly immediately after the United States entered the war. As prices advanced wholesalers and retailers began buying for speculative purposes. Consumers anticipated future wants in their purchases, while wartime wages added to their purchasing power. All this reacted further in higher prices and increased speculative demand on the part of wholesalers and retailers for goods which the industry, hampered as it was by Government orders, could not immediately supply.

Following the armistice there was a sharp break in prices, largely in response to a widespread feeling that the war being over, everything would drop back to prewar conditions immediately. With this break came a period of hesitation similar to that following the outbreak of the war, after which the effect of a shortage of goods immediately available to supply trade demands reasserted itself and prices began to advance sharply, bringing into action with redoubled force the pressure for yarns and goods. Thus a situation developed lasting for over a year after the cessation of hostilities, in which buyers were clamoring for goods which the industry could not at the moment supply, and upon which sales of certain types of Government stores could have but little effect, owing to the fact that the goods were in military styles or were otherwise not suited to the civilian demand. Cancellation of war orders released productive capacity, but it took some time for the spindles and looms so released to turn to the manufacture of civilian styles, and produce in sufficient volume to become effective in bringing production and demand into their normal relations. Throughout the readjustment period speculative buying continued, so that although depleted stocks in some lines were being replenished and excess stocks were being accumulated in many other lines, there was a period of feverish activity in all branches of the cotton industry, extending throughout the year 1919 and well into 1920. Every manufacturer had orders at high prices. To supply these orders he bid high for raw cotton, thus carrying over into the cotton market the speculative attitude of the cloth and yarn trade. Throughout this period the demand was for goods made from the better grades and longer staples of raw cotton. Consequently throughout 1919 and the early months of 1920 the prices of yarns, fabrics, and raw cotton continued advancing

in the face of the largest carry over of low-grade, short-staple raw cotton and linters ever experienced in the American trade, amounting in 1919 to 5,155,682 bales. (See Exhibit 1.)

Combed-yarn spinning, as has been said, is the branch of the industry that supplies the highest-grade yarns both for the strongest coarse fabrics and for the finer grades of knit goods, woven fabrics, thread, and lace. During the period from 1914 to 1919 there was an unusual demand for the products of this branch of the industry. During the war imports of fine combed yarns from England were largely cut off, the demand for strong coarse yarns for automobile-tire and airplane fabrics increased, and finally, the general prosperity of the country throughout 1919 and into 1920 caused an increasing domestic demand for fine fabrics, hosiery, and knit goods. Consequently the period of high prices continued longer and the price advances were even greater for combed yarns and their raw materials than for carded yarns and short-staple cotton.

RAW COTTON PRICES.—As a background for the discussion of the movement of raw cotton prices it is necessary to recognize that there are a number of varieties of cotton and a number of grades and lengths of staple for each variety. The principal varieties used in the United States in order of their importance in volume used in recent years in the manufacture of yarns are short-staple upland, used almost exclusively in the production of carded yarns; long-staple upland or peeler; imported Egyptian; American-grown Egyptian; sea-island; and small quantities of long-staple from Peru and other sources, used in the production of both carded and combed yarns. Short-staple upland covers a range in length of staple up to $1\frac{1}{16}$ inches and long-staple upland from $1\frac{1}{8}$ to $1\frac{5}{16}$ inches. The Egyptian and sea-island cottons are the finest and silkiest as well as the longest staple, generally ranging in length from $1\frac{3}{8}$ up to $2\frac{1}{4}$ inches. Cotton of $1\frac{1}{8}$ inches or longer staple falls into the general classification spoken of in the trade as "long-staple cotton," and is the raw material of particular interest in connection with combed yarns.

Twenty-one grades of American upland cotton are reported in exchange quotations. Of this number 9 are basic grades of white cotton and 12 are off grades, arising from the tinging or staining of the base grades. The various grades carry price differentials varying from time to time with the demand for each. Normally the prices of all grades follow more or less closely the trend of prices for middling short-staple upland, which has for that reason been adopted by the trade as the basic grade for all upland-cotton quotations. Price differentials for grades other than middling are expressed in points, or hundredths of a cent, "on" or "off" the price quoted for middling; grades higher than middling being quoted "on" and grades below middling being quoted "off" middling. For example, if on a certain date the price quoted for middling is 22 cents per pound and middling fair (a higher grade) is quoted 295 points "on," the price for middling fair would be 24.95 cents. If on the same date middling yellow stained is quoted at 690 points "off," the price would be 15.10 cents per pound. Similarly, differentials stated in points "on" middling are quoted for long-staple upland or "peeler" cotton, which on account of its greater length of staple brings prices higher than short-staple. For instance, on a certain date middling

short-staple was quoted on the Memphis market at 20.50 cents and middling $1\frac{1}{8}$ and $1\frac{3}{16}$ inch staple, respectively, 500 and 1,000 points "on." The price for middling $1\frac{1}{8}$-inch staple would be 25.50 cents and for middling $1\frac{3}{16}$-inch staple 30.50 cents per pound on the Memphis market.

In order to make clear the price movements of the various longer staples that are used in the manufacture of combed yarns in comparison with the basic middling short staple, market prices were secured covering the period August, 1914, to October, 1920, for the following grades and lengths of staple:

1. Middling upland spot sales on the New York Cotton Exchange.
2. Long-staple upland strict middling, for four lengths of staple, $1\frac{1}{8}$, $1\frac{3}{16}$, $1\frac{1}{4}$, and $1\frac{5}{16}$ inch, delivered New Bedford, Mass.
3. Sea-island, choice, on the Savannah, Ga., market.
4. Imported Egyptian (Sakellaridis) landed, New Bedford, Mass.

These prices are compiled in part from Bulletin No. 23 of the War Industries Board, "Prices of Cotton and Cotton Products," for the years 1913 to 1918, inclusive, and supplemented by prices compiled by the United States Department of Agriculture and the Federal Trade Commission for the year 1919. Owing to irregular importations of Sakellaridis many price quotations for imported Egyptian were missing, making frequent interpolations necessary in the prices of the War Industries Board for 1917 and 1918 and in the Commission's data for 1919.

Since the various lengths of staple sell at different prices, a comparison of the movement of prices for different kinds of cotton and different lengths of staple is best made in terms of relative prices, or index numbers, that show the movement of each of the items to be compared in relation to its own price level during some basic period of time that is the same for all items. For the purpose of making this comparison, relative prices, or index numbers, based on the yearly average of monthly price quotations for the cotton year August 1, 1913, to July 31, 1914, have been computed for each kind and length of staple named above. All monthly prices used are monthly averages of weekly price quotations. The cotton year 1913–14 has been chosen as the base year in order to show the fluctuations in prices from 1914 to 1920 in relation to a period immediately before the war.

Raw cotton price movement.—In Chart I (opposite) the relative prices for sea-island, imported Egyptian, and long-staple upland or peeler cotton of $1\frac{1}{8}$, $1\frac{3}{16}$, $1\frac{1}{4}$ and $1\frac{5}{16}$ inch staples are plotted together to show the price movements of the various kinds and lengths of staple in relation to each other, as well as to show the relative price increase for each staple compared to its level during the base year.

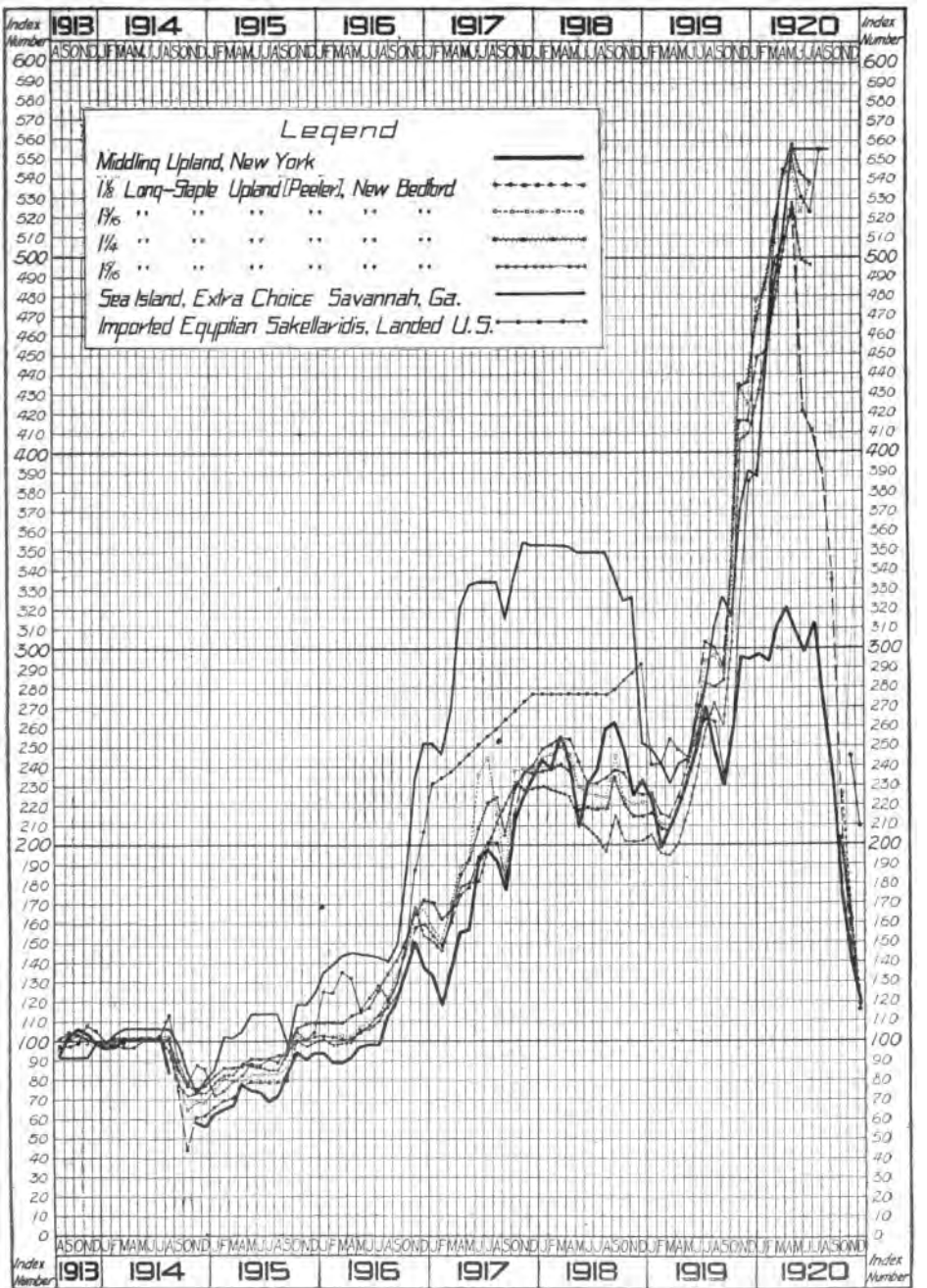
Short-staple upland is also charted (by heavy black line) to emphasize the difference in price movement between this kind of cotton and the long-staple cotton suitable for combed yarn manufacture.

In considering the chart the five graphs representing the relative prices of peeler cotton of $1\frac{1}{8}$, $1\frac{3}{16}$, $1\frac{1}{4}$, and $1\frac{5}{16}$ inch staples and middling short-staple upland may be regarded as a group the relative prices of which generally move more or less parallel to each other, while those representing sea-island and imported Egyptian cotton move more or less independently of the others at different times in the period covered.

CHART I RAW COTTON

RELATIVE MARKET PRICES AUGUST, 1913 TO DECEMBER, 1920

[BASED ON AVERAGE QUOTED PRICES AUGUST, 1913 TO JULY, 1914=100]



Federal Trade Commission, Report on Combed Cotton Yarns 1921

During the base year (August, 1913, to July, 1914) the relative prices of the different kinds of cotton fluctuated somewhat with respect to their base level represented by 100, but the fluctuations were small as compared with those of succeeding years.

The price movements of the war period began with a sharp fall in prices in the months immediately following the outbreak of the war. From August 1 to November 15, 1914, during which period the New York Exchange was closed, no prices are shown for middling upland. When the exchange reopened the relative price for this grade had fallen from 101 in July to 58. Strict middling upland $1\frac{1}{8}$-inch staple suffered the largest fall in price, from 101 in August to 44 in October, after which it rallied to 61 in November.

During the period from the outbreak of the war to July, 1917, the graphs show that the relative prices for long-staple upland of $1\frac{1}{8}$, $1\frac{3}{16}$, $1\frac{1}{4}$, and $1\frac{5}{16}$ inch staples considered as a group were generally higher than those for short-staple upland. The relative prices of this long-staple group moved upward almost parallel with the prices of short staple, but with somewhat less pronounced fluctuations. Following the German peace offer of December 12, 1916, middling short-staple upland fell sharply from 151 in November to 118 in February. During this period it was becoming more and more evident that the United States was about to be drawn into the war. This drop in short-staple prices was accompanied by a somewhat smaller decline in long-staple prices and by only a slight decrease in sea-island prices. After the breaking off of relations between the United States and Germany, February 3, 1917, prices of all upland cotton moved sharply upward during the months from February to July with only a slight wavering in the curves following the declaration of war by the United States in April, 1917.

All upland prices fell from July to September, 1917, $1\frac{3}{16}$-inch staple suffering the greatest decrease, from 244 to 187. From September, 1917, to March, 1918, the general trend was again upward, but during this period the relative positions of the long-staple group and middling short staple were reversed. The fact that the heaviest demands of the Government for cotton goods were from the outset for heavy fabrics—ducks, drills, twills, and denims—made from short-staple cotton, tends to explain the greater relative price increase of short-staple cotton. The relative price for middling short staple rose during this period from 177 to 255, while the largest increase in the long-staple group was for $1\frac{1}{8}$-inch staple, from 181 to 255. The sharp drop in short staple from 255 in March to 210 in May followed the reverses of the Allies in the spring of 1918. Long-staple prices also fell, but not so sharply as short staple. Although middling short staple fluctuated more widely, it in general maintained a relative price level well above that of the long-staple group through the year 1918. This condition was the result of the great shortage of goods made of short-staple cotton created by the previously mentioned demand of the Government for coarse goods. It was to this type of goods that the spinning capacity of the country was turned. Carpet and specialty manufacturers rebuilt their machinery or reequipped their mills for the manufacture of light and heavy duck and other fabrics needed by the Army and the Navy. Undoubtedly under the pressure of demand for such fabrics a part of the spindles normally engaged on long-staple yarns was turned to short staple, thereby

increasing the demand for short-staple cotton and explaining its relatively higher price level in the latter part of 1918.

Sea-island and imported Egyptian prices during the first two years of the war advanced more than the prices of the upland group. Egyptian fluctuated somewhat irregularly, owing to interruption in the import movement. From the latter part of 1916 to the latter part of 1917 sea-island advanced sharply with the exception of a brief decrease in February, 1917. The total increase in the relative price of sea-island from September, 1916, to December, 1917, was from 150 to 353. Egyptian advanced during the same period, but not so rapidly, from 130 to 277. The advances and the extremely high level maintained by these staples up to the time of the armistice were undoubtedly due partly to the increased demand for such cotton for airplane, balloon, and tire cloth and other long-staple fabrics for war uses and partly to decreasing crops of sea-island and lessened imports of Egyptian cotton.

In the case of Egyptian cotton, importations were uncertain and price quotations were not always obtainable. Beginning in the latter part of 1917 the War Trade Board controlled the importation of this staple, while the cotton goods section of the War Industries Board directed its distribution to mills in the country. The relative prices for imported Egyptian used in the graph up to December, 1918, are based on the prices published by the War Industries Board. These prices show frequent interpolations prior to September, 1917, and from September, 1917, to December, 1918, market prices f. o. b. Alexandria, Egypt, are used; hence the lack of fluctuation in this curve. During 1919 and 1920 New Bedford quotations gathered by the Federal Trade Commission are used. Quotations, however, were scattering and interpolation again became necessary to fill gaps for certain months. Consequently the curve for imported Egyptian cotton is to be regarded as indicating the general trend of prices rather than as showing the actual fluctuations from month to month, for the period from September, 1917, to December, 1920. For some staples no quotations were available for several months in the latter part of 1920. During this period prices were falling so rapidly that no interpolations have been attempted; hence the breaks appearing in several of the graphs.

Sea-island and imported Egyptian suffered sharp breaks in price along with the other staples in the later months of 1918 and early months of 1919. The relative price of sea-island decreased from 326 in November, 1918, to 231 in March, 1919, a total of 95 points, representing the largest post-armistice drop of any staple. For a time imported Egyptian continued to advance when all other staples were declining, but finally between December, 1918, and January, 1919, the relative price for this variety slumped from 292 to 240. From this time on the price movements of sea-island and imported Egyptian were so similar to those of other long-staple cottons that they can all be discussed as a single group.

Following the post-armistice slump described above, all raw cotton prices moved sharply upward, from April, 1919, to May, 1920, with the exception of temporary declines when the crop of 1919 came on the market. In this period of 13 months all long-staple cottons advanced far more rapidly and with less interruption than short staple. In the case of the long-staple upland group, the relative

prices reached in May, 1920, ranging from 525 to 559, were more than twice as high as those of the highest point of the war period. Sea-island and imported Egyptian joined the long-staple uplands in their advance and went to price levels of 556 for sea-island and 551 for imported Egyptian in May, 1920.

Although middling short-staple upland started to advance as sharply in March, 1919, as did the long-staple group, it suffered a sharp decrease from 270 in July to 230 in September, 1919. After this it advanced to 296 in November, 1919, and maintained practically this level until February, 1920. In March the price advanced again and reached the maximum of 320 in April, 1920. For this staple the total gain in relative price from the low point of 198 in February, 1919, to the high point of 320 in April, 1920, was 122 index numbers. During approximately the same period, from February, 1919, to May, 1920, the six long staples show much greater gains in relative prices. For the latter group the smallest gain was 309 index numbers and the largest 350 index numbers.

The above comparison of the relative price movements of various staples indicates that the staples predominantly used in the manufacture of combed yarns advanced far more rapidly in 1919 and the early months of 1920 than did the prices of middling short-staple upland. In terms of relative prices, long staples advanced to levels which were from five to five and a half times the prices prevailing before the war, while middling short staple advanced to about three and a fifth times its price before the war. Whether these extraordinary advances in long-staple prices were a cause or an effect of the high market prices of combed yarns is considered in the following paragraphs in connection with a study of the advance in prices of combed yarn in chronological relation to the advance in prices of long-staple cottons from which they are made. (See p. 34.)

COMPARISONS OF PRICES OF COMBED YARN AND OF RAW COTTON.—Just how closely the market price movements of combed yarns were related in point of time to the market price movements of raw cotton staples during the period from August, 1914, to December, 1920, is shown by the accompanying series of charts, in which the market prices of various counts of combed yarns are compared with the market prices of raw cotton generally used in their manufacture.

Chart II (opposite) shows the relative prices of two lengths of staple, namely, short-staple upland and long-staple upland (peeler) 1⅛-inch staple compared with the relative prices of certain counts of two-ply combed peeler skeins and single combed peeler cones.

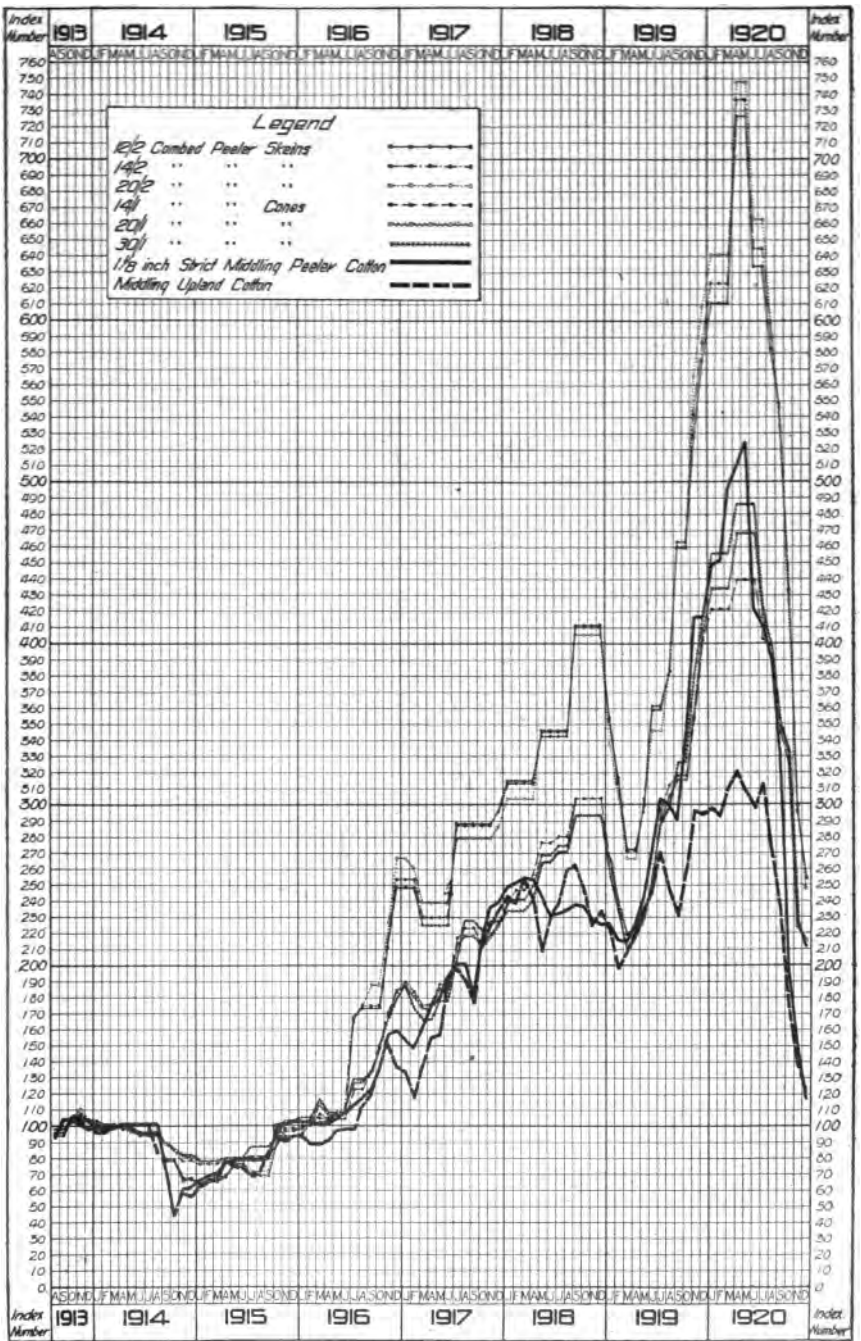
It will be noted that 12/2s, 14/2s, and 20/2s [1] skeins form a group of curves generally moving independently of the second yarn group, consisting of 14s, 20s, and 30s, single cones. In the early part of the war period from August, 1914, to June, 1916, a period of nearly two years, the price graphs of both yarn groups generally moved parallel to the two raw-cotton price graphs. During the remainder of the period covered the two-ply yarns brought higher relative prices than the single-yarn group. Furthermore, the two-ply group, in so far as it fluctuated with either cotton curve, fluctuated with the 1⅛-inch peeler curve, while the single-yarn group tended to fluctuate more

[1] In referring to yarns, the numbers used designate the count and ply of the yarn. Thus 14/2s means "number 14, two-ply yarn." Similarly 14s, designates a number 14 single yarn, and 14/3s a number 14 three-ply yarn. (See pp. 18–19 for further explanation of counts and methods of put-up.)

CHART II. RAW COTTON AND COMBED YARNS.

RELATIVE MARKET PRICES AUGUST, 1913 TO DECEMBER, 1920.

(BASED ON AVERAGE QUOTED PRICES AUGUST, 1913 TO JULY, 1914—100.)



Federal Trade Commission, Report on Combed Cotton Yarns, 1921.

nearly with the short-staple price graph up to the middle of 1919, after which it tended more nearly to follow the 1⅛-inch peeler graph.

Of the two yarn groups, the two-ply skeins advanced far more radically than the single-cone group and were less responsive to the fluctuations of cotton prices than the single-cone group from June, 1916, to August, 1918. During this period the two-ply skein group advanced from relative prices ranging from 107 to 109 for different counts in June, 1916, to relative prices ranging from 343 to 346 in August, 1918, an advance of approximately 236 index numbers. During the same period the single-cone group advanced from relative prices ranging from 104 to 108 for different counts to prices ranging from 270 to 280, an average advance of approximately 169 index numbers. During the same period raw-cotton prices advanced on the average but 144 index numbers. Both yarn groups increased in price more rapidly than raw-cotton prices, but the two-ply group far outdistanced the single-cone group.

During the remaining months of 1918 maximum prices for yarns fixed by the War Industries Board were in effect. These prices were fixed with the intention of placing them high enough to insure maximum production. In so doing, the prices of the two-ply skein group were increased by about 60 index numbers, while those of the single-cone group were increased by only about 25 index numbers.

After the postarmistice slump the relative prices of the two-ply yarn group advanced with great rapidity for a period of one year from April, 1919, to April, 1920. Starting from relative prices ranging for different counts from 267 to 272 in April, 1919, they rose to prices ranging from 728 to 748 in April, 1920. During the same period the relative prices of the single-cone group advanced much less. In approximately the same period 1⅛-inch peeler advanced from 214 in March, 1919, to 525 in May, 1920, while short-staple upland advanced from 198 in February, 1919, to 320 in April, 1920.

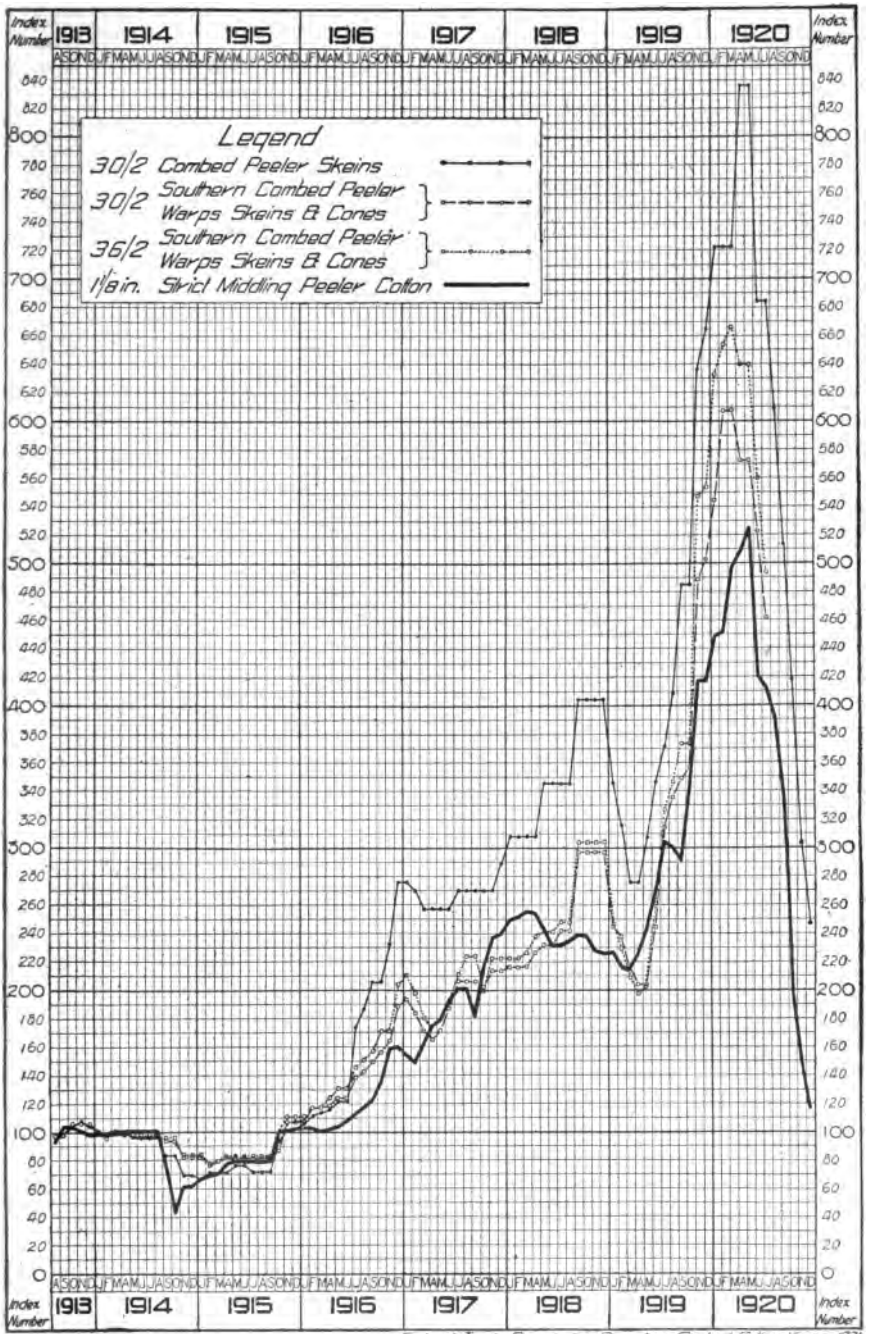
Throughout this period it is to be noted that the big increase in relative prices for the two-ply skein group led the increase in 1⅛-inch peeler cotton prices by from 30 to 60 days, indicating that raw-cotton prices were following rather than leading the prices of two-ply yarns. The contrary is true of the single yarns, which tended to follow rather than lead the advance in raw cotton.

Charts III, IV, V, and VI (pp. 35-38) show in a similar manner index number comparisons between prices of combed peeler yarns of medium and fine counts and those of peeler cotton of the lengths of staples generally used in their manufacture. The characteristics of the graphs shown in these charts are similar to those in Chart II, discussed above. In general, the market prices of combed yarns of the higher counts and raw-cotton prices fluctuated more nearly parallel up to the middle of 1919 than did the coarser yarns shown in Chart II. From the middle of 1919 to May, 1920, the advance in market prices of combed yarns became more rapid than the advance in raw-cotton prices, and in general preceded in point of time the advance in raw-cotton prices, thus corroborating the conclusion suggested by the coarse combed yarn graph, that the advances in market prices of raw cotton in 1919 and the early months of 1920 were a consequence rather than a cause of the high prices of combed yarns. In other words, the situation was that generally described as a seller's

CHART III RAW COTTON AND COMBED YARNS

RELATIVE MARKET PRICES AUGUST, 1913 TO DECEMBER, 1920

(BASED ON AVERAGE QUOTED PRICES AUGUST, 1913 TO JULY, 1914=100)

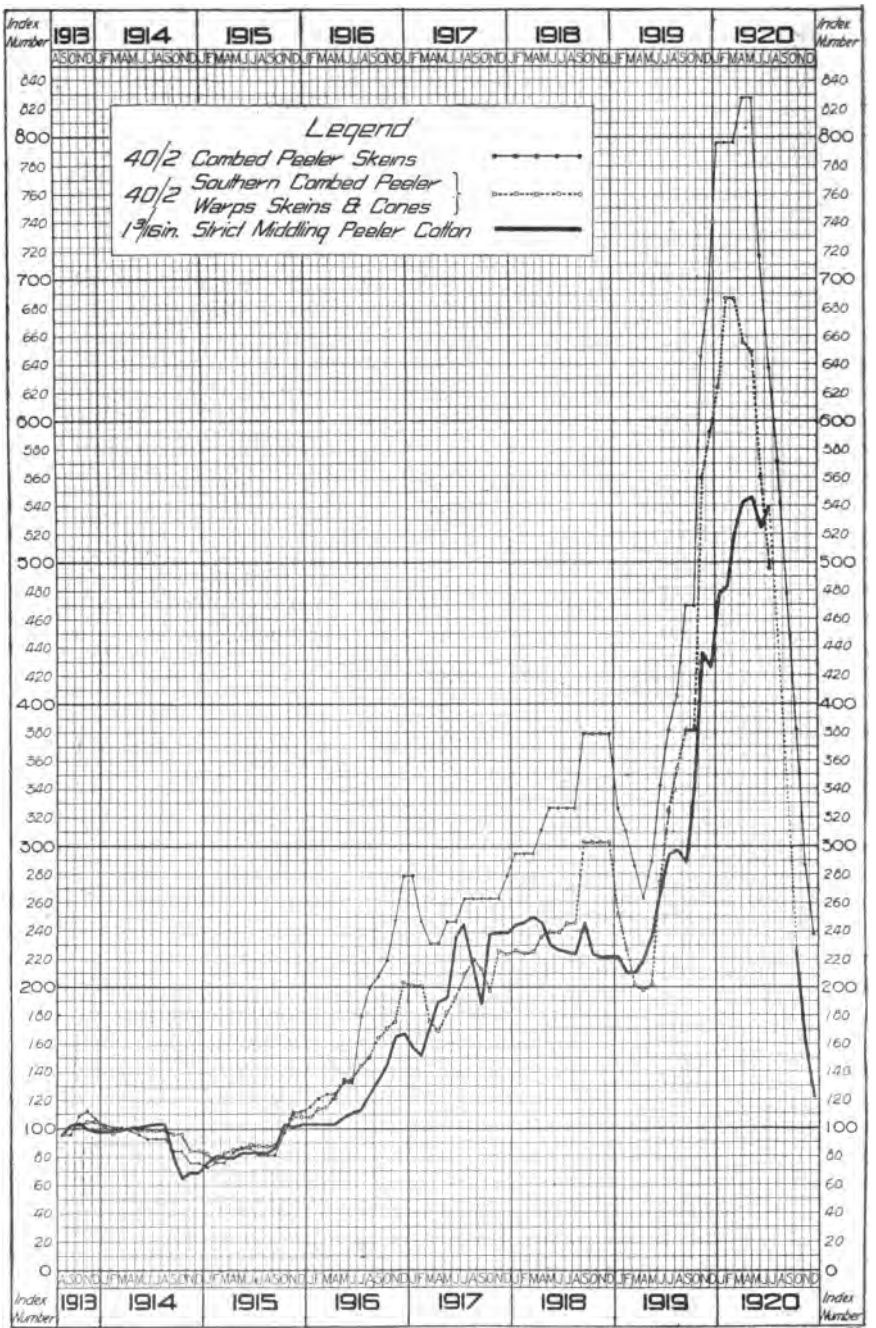


Federal Trade Commission, Report on Combed Cotton Yarns 1921

CHART IV RAW COTTON AND COMBED YARNS

RELATIVE MARKET PRICES AUGUST, 1913, TO DECEMBER, 1920

[BASED ON AVERAGE QUOTED PRICES AUGUST, 1913 TO JULY, 1914—100]

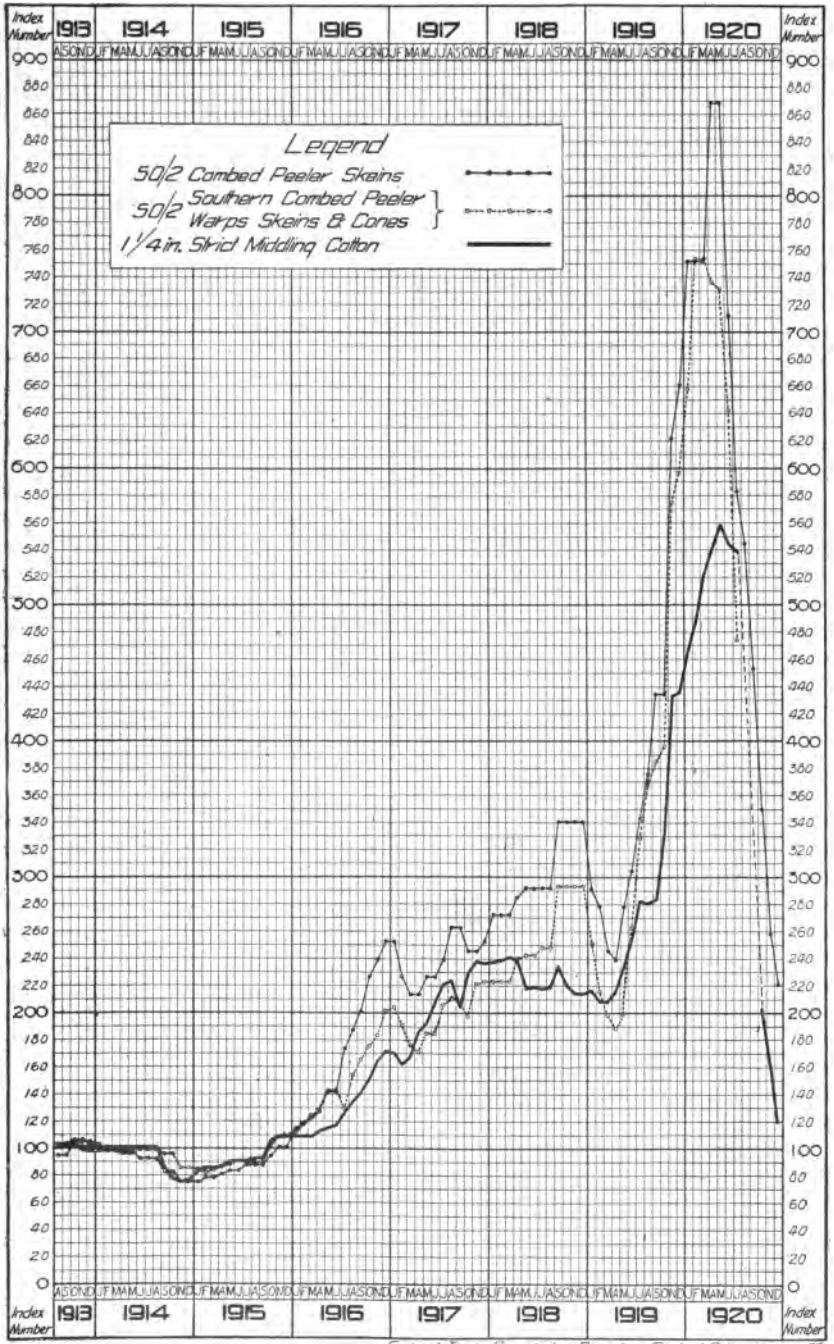


Federal Trade Commission, Report on Combed Cotton Yarns 1921

CHART V RAW COTTON AND COMBED YARNS

RELATIVE MARKET PRICES AUGUST, 1913 TO DECEMBER, 1920

[BASED ON AVERAGE QUOTED PRICES AUGUST, 1913 TO JULY, 1914=100]



Federal Trade Commission, Report on Combed Cotton Yarns 1921

CHART IV RAW COTTON AND COMBED YARNS

RELATIVE MARKET PRICES AUGUST, 1913, TO DECEMBER, 1920

{ BASED ON AVERAGE QUOTED PRICES AUGUST, 1913 TO JULY, 1914—100 }

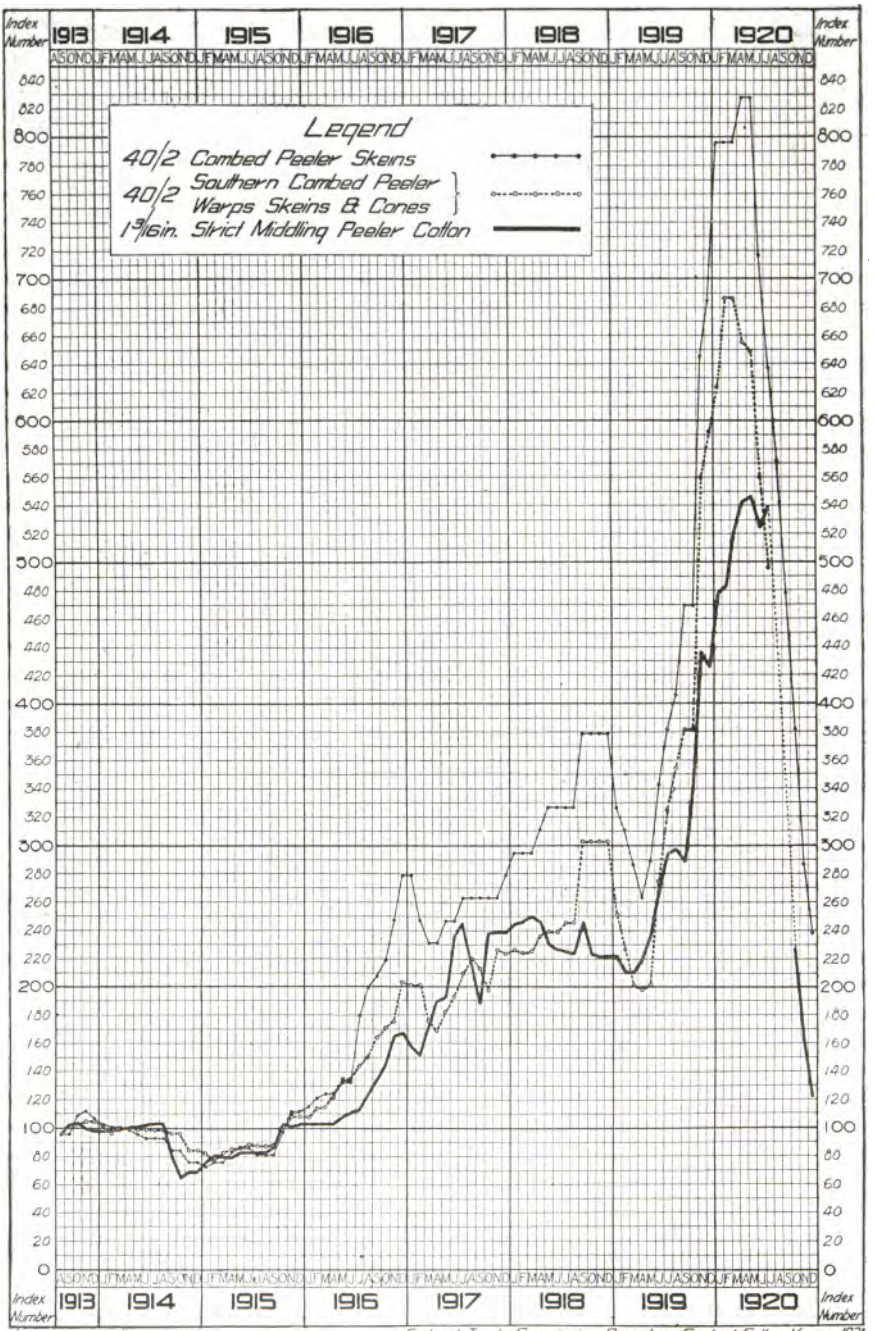


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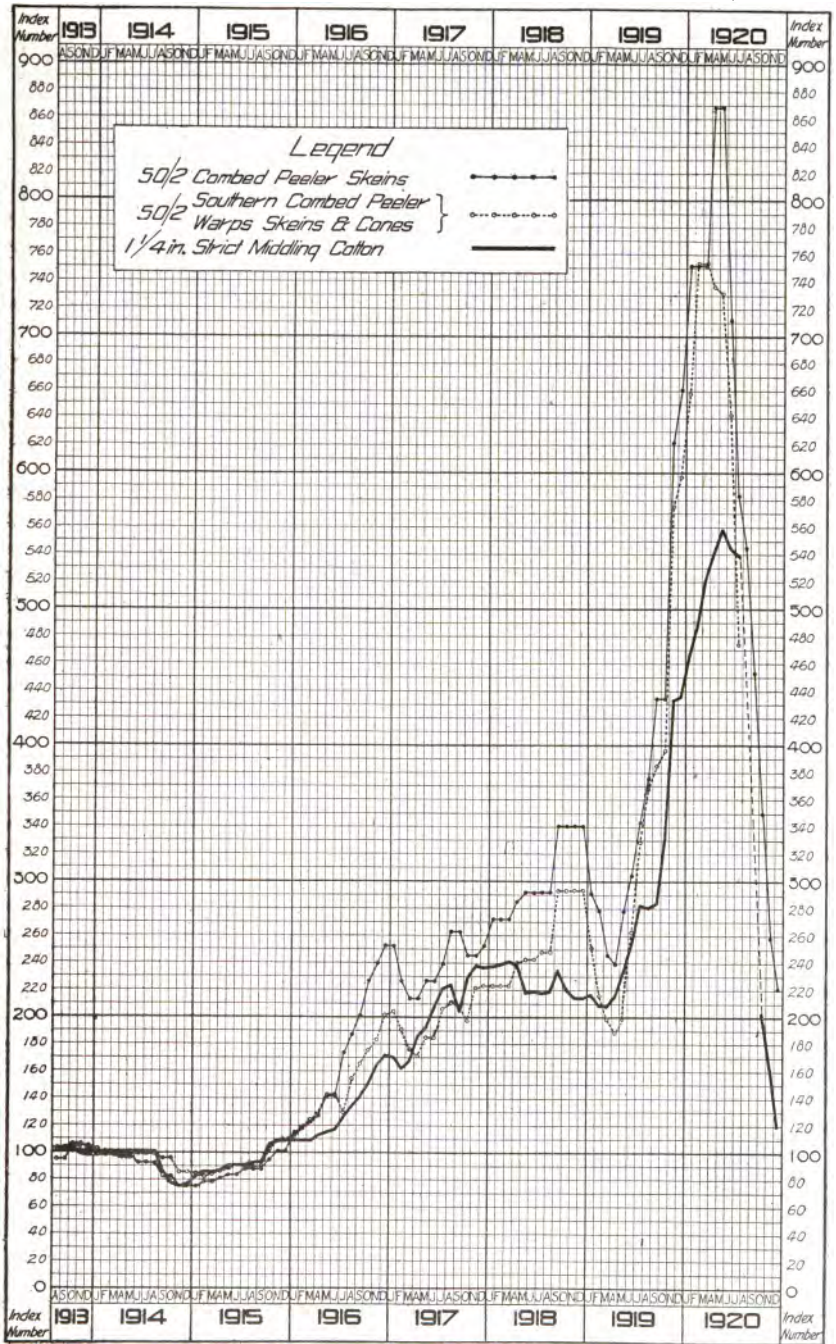
CHART V RAW COTTON AND COMBED YARNS

RELATIVE MARKET PRICES AUGUST, 1913 TO DECEMBER, 1920

(BASED ON AVERAGE QUOTED PRICES AUGUST, 1913 TO JULY, 1914=100)



Federal Trade Commission, Report on Combed Cotton Yarns 1921

CHAPTER IV.

AVERAGE COSTS, PRICES, AND PROFITS OF COMBED YARN MANUFACTURERS.

COMPANIES AND PRODUCTION COVERED.—Reports from 11 of the 14 companies named in Chapter I were found usable for direct comparisons of 1914 with later years. Of the usable companies seven are located in the South and four in New England. From 8 of these 11 companies reports for all years from 1914 to 1919 were secured; from 9, reports for 1914, 1915, 1918, and 1919, four years in all, were secured; and from all 11, reports were secured for 1914 and 1919 only.

Data as to production covered by the companies from which reports were secured in each year are shown in the following table:

TABLE 3.—*Total market-yarn production of combed and carded yarns covered, by years, 1914–1919.*

Year.	Number of companies.	Yarn production.				
		Combed and carded.	Combed.	Per cent of total.	Carded.	Per cent of total.
		Pounds.	*Pounds.*		*Pounds.*	
1914	11	23,316,755	21,901,203	93.9	1,415,552	6.1
1915	9	10,454,048	7,630,505	73.0	2,823,543	27.0
1916	8	9,633,012	7,788,726	80.9	1,844,286	19.1
1917	8	9,198,005	7,072,605	76.9	2,125,400	23.1
1918	9	9,938,790	7,283,734	73.3	2,655,056	26.7
1919	11	35,775,422	33,371,590	93.3	2,403,832	6.7

The 11 companies, 7 of which are in the South and 4 in New England, produced a total of 23,316,755 pounds of yarn in 1914, of which the New England mills produced 18,501,998 pounds, or 79.4 per cent, and the southern mills 4,814,757 pounds, or 20.6 per cent. In 1919 the same 11 mills produced a total of 35,775,422 pounds, representing an increase of 53.43 per cent over 1914. Of the 1919 total the New England group produced 30,580,365 pounds, or 85.5 per cent, while the southern group produced 5,195,057 pounds, or 14.5 per cent. In the intervening years the total poundage of yarns shown is smaller, because the production of two large New England mills is not included. With these two mills omitted the percentage of the total produced by the southern mills was much greater. Of a total of 10,454,048 pounds produced by the nine mills in 1915, 47.6 per cent was produced by the two New England mills included and 52.4 per cent by the seven southern mills included. For the remaining years the proportions were, in 1916, two New England mills, 48.4 per cent, and six Southern mills, 51.6 per cent; in 1917, two New England mills, 46.1 per cent, and six southern mills, 53.9 per cent; in 1918, two New England mills, 41.4 per cent, and seven southern mills, 58.6 per cent.

The companies covered in each year produced both combed and carded yarns. The carded yarn manufactured by the 11 identical

mills during the years 1914 and 1919 comprised 6.1 per cent and 6.7 per cent, respectively, of their total production. For a smaller number of mills in the intervening years carded yarns contributed a greater proportion of the total production, ranging from 19.1 to 27 per cent. The average costs discussed below are based on the total production of both combed and carded yarns because complete segregation of carded yarn costs from the total was found to be impossible. It is to be recognized that the inclusion of carded yarns, in the production of which lower priced cotton may be used and waste and labor costs are less on account of the omission of certain mill processes necessary to the production of combed yarns, tends to reduce the average costs slightly from what they would be if only combed yarns were included. The extent to which the average costs shown are too low on account of the inclusion of from 6 to 27 per cent of carded yarn in the total production is generally unimportant, ranging from about one-half to 2½ per cent in the total cost for the various company groups shown.

GROUPING OF COMPANIES.—On account of difficulties encountered in securing access to the books of certain companies and the amount of time required to compile the necessary information, data for all six years were secured for only 8 of the 11 companies mentioned above. Consequently the ensuing discussion is centered upon two groups of companies, one of 8 companies running through all six years and the other of 11 companies for the years 1914 and 1919 only. The following table shows the number of spindles installed and the production of combed and carded yarns for the two groups indicated above:

TABLE 4.—*Number of spindles and total production of combed and carded-cotton yarns for 8 companies, 1914 to 1919, and for 11 companies, 1914 and 1919.*

EIGHT COMPANIES.

Year.	Spindles.		Production.					
	Total.	Per cent increase over 1914.	Total production.	Per cent increase over 1914.	Combed yarn production.	Per cent increase over 1914.	Carded yarn production.	Per cent increase over 1914.
1914	161,780	.....	7,484,988	.....	6,109,283	.....	1,375,705	.....
1915	166,268	2.8	9,420,506	25.9	7,025,673	15.0	2,394,833	74.1
1916	177,336	9.6	9,633,012	28.7	7,788,726	27.5	1,844,286	34.1
1917	186,576	15.3	9,198,005	22.9	7,072,605	15.8	2,125,400	54.5
1918	186,576	15.3	8,974,983	19.9	6,431,544	5.3	2,543,439	84.9
1919	188,340	16.4	8,613,760	15.1	7,430,479	21.6	1,183,281	[1] 14.0

ELEVEN COMPANIES.

1914	439,796	.....	23,316,755	.....	21,901,203	.....	1,415,552	.....
1919	602,056	36.89	35,775,422	53.43	33,371,590	52.37	2,403,832	69.82

[1] Decrease.

In the Census of Manufactures for 1919 the Bureau of the Census for the first time secured data making it possible to separate combed-cotton yarns produced for sale as yarns (i. e., market yarns) from the other cotton market yarns. As already stated, preliminary tabulation of the quantity of combed-market yarns made for the Commission by courtesy of the Bureau of the Census for the year

1919 shows a total of 135,834,956 pounds produced and sold during the year. This quantity does not include any combed yarns woven or knit into fabrics by the companies producing them. This preliminary tabulation is subject to correction in the final publication of the 1919 Census of Manufactures.

Based on the above total of 135,834,956 pounds the 33,371,590 pounds of combed yarns produced by the 11 companies shown in Table 4 for the year 1919 represents approximately 24.6 per cent of the total combed yarn produced for sale as yarn in 1919. As stated above, the census figure on which this percentage estimate is based does not include a quantity of combed yarn probably equal to or even greater than that shown above that was spun and woven or knit and sold as fabrics by the companies producing it.

The first effect of the war on the production of the eight-company group, as shown in the table, was to stimulate the output of both combed and carded yarns, though the greater relative increase was in carded yarns. Total production reached its maximum in 1916 when it amounted to 9,633,012 pounds, a quantity 28.7 per cent greater than in 1914. In the remaining years total production decreased until in 1919 it amounted to 8,613,760 pounds, a quantity 15.1 per cent greater than in 1914. In 1917 and 1918 carded-yarn production increased sharply, while combed-yarn production decreased. In 1919, however, the demand for combed-yarns at high prices caused a sharp increase in combed-yarn production and a somewhat more than equivalent decrease in carded-yarn production, which fell to its lowest point for the period.

Considered in relation to the number of spindles in the eight mills, the growth in production in 1915 and 1916 was accomplished without a corresponding increase in the number of spindles installed, while in later years spindlage increased but total production decreased, so that in 1919 the increases in production and in spindlage as compared to 1914 were almost equal.

The decreasing production in relation to the number of spindles installed in the later years of the period covered may be ascribed to several causes. Lessened efficiency of labor coupled with a somewhat depleted labor supply is said by some manufacturers to have been a factor in the years 1918 and 1919. Furthermore, the disturbed condition following the armistice tended to decrease production in the early months of 1919, although later in the year demand became so abnormal as to result in extremely high prices for combed yarns in the last half of 1919 and the early months of 1920. Increased demand for combed yarns at prices relatively higher than those of carded yarns account for the considerable increase in combed and the marked decrease in carded-yarn production shown in the table for the year 1919.

AVERAGE TOTAL COSTS, PRICES, AND PROFITS PER POUND.—The discussion of costs, prices, and profits is presented in three parts, the first part being devoted to the average cost, price, and profit per pound for all counts of both combed and carded yarns produced by the companies included; the second part to estimated costs per pound by counts compiled by the Commission in comparison with the prices per pound actually realized; and the third part to the average distribution of the purchaser's dollar to each of the items of average cost and profit for each year.

For the purpose of showing in a general way the movement of costs of production and selling prices and profits during the period covered by this report, an analysis of the weighted average total cost of sales, average price realized, and average net operating profit per pound of yarn has been prepared for 8 companies for six years and for 11 companies for the two years 1914 and 1919 only. As stated above, the total production on which the average costs, prices, and profits are based include from 6 to 27 per cent of carded yarns for different company groupings in different years.

Cotton yarn varies materially in cost according to the size or count of the yarn; the kind of cotton used in its manufacture; the ply; and the method in which the yarn is put up for the market, and to a less extent with the type of yarn, i. e., warp filling, etc. In discussing averages it is recognized that variations in cost of different counts, types, and methods of put-up are ignored. Attention is centered on averages for the purpose of showing the general trend of costs, prices, and profits. The results obtained by this method are important and significant because during the period covered there was no general shifting of the mills covered from coarser to finer yarns or vice versa.

The following table shows the average cost of sales, the average selling price, and the average net operating profit per pound for two groups of companies by years from 1914 to 1919. The net operating profit per pound is the profit realized from the yarn business after deducting the total cost of sales including selling commissions paid. Income from outside investments and cotton futures is not included in the net operating profit shown. The first group of companies consists of 8 identical mills running throughout the six-year period, while the second consists of 11 companies for which results can be shown for 1914 and 1919 only.

TABLE 5.—*Average total cost of sales, average selling price, and average net operating profit per pound for 8 companies, by years, 1914 to 1919, and for 11 companies, 1914 and 1919.*

EIGHT COMPANIES.

Year.	Cost of sales.	Selling price.	Net operating profit.
	Cents.	*Cents.*	*Cents.*
1914	36.10	40.50	4.40
1915	30.71	35.79	5.08
1916	38.43	48.18	9.75
1917	53.21	71.75	18.54
1918	71.64	88.86	17.22
1919	83.10	100.60	17.50
ELEVEN COMPANIES.			
1914	34.16	37.44	3.28
1919	80.81	99.58	18.77

Referring to the section of the table devoted to eight companies for six years, the average cost of sales fell from 36.10 cents per pound in 1914 to 30.71 cents per pound in 1915, after which it increased con-

tinuously though somewhat irregularly to 83.10 cents per pound in 1919. The average selling price per pound decreased almost parallel with cost of sales from 40.50 cents in 1914 to 35.79 cents in 1915, after which there was uninterrupted increase to 100.60 cents per pound in 1919. The average net profit on sales increased continuously from 4.40 cents per pound in 1914 to 5.08 cents in 1915; 9.75 cents in 1916, and 18.54 cents per pound in 1917, the year of highest profit of the entire period. In 1918 the net profit on sales fell to 17.22 cents, but increased slightly to 17.50 cents per pound in 1919.

For the larger group of 11 companies shown for the two years 1914 and 1919 only, the results are not strikingly different from those for the 8 companies for the same two years. In 1914 the cost of sales. the selling price, and the profit per pound were somewhat less in the larger group, while in 1919 the cost and price per pound were both somewhat less than for the 8-company group, but the profit per pound was 1.27 cents greater.

Itemization of average costs of cotton, labor, etc.—The resolution in response to which the commission made the investigation particularly requested information as to the increase in prices in relation to increased costs of cotton and labor. Hence, costs were secured by items, including these and other items of cost. Table 6 shows a detailed analysis of the average costs and prices in cents per pound for eight companies from 1914 to 1919, inclusive. The figures shown in this table are those upon which the percentage analysis in Table 7 is based.

TABLE 6.—*Detailed average costs, prices, and profits per pound for 8 companies, 1914–1919, and for 11 companies, 1914 and 1919.*

EIGHT COMPANIES.

Year.	Raw cotton.	Labor.	Other manufacturing expense.	Depreciation.	Inventory variation.	General and administrative.	Packing and selling.	Total cost.	Selling price.	Profit.
	Cents.	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*
1914	21.34	6.70	3.12	1.42	0.81	0.88	1.83	36.10	40.50	4.40
1915	18.20	6.09	2.87	1.36	.14	.59	1.46	30.71	35.79	5.08
1916	24.27	7.19	3.44	1.81	[1].87	.83	1.76	38.43	48.18	9.75
1917	34.36	9.03	4.34	2.13	[1].64	1.19	2.80	53.21	71.75	18.54
1918	47.42	11.57	5.18	2.37	.42	1.25	3.43	71.64	88.86	17.22
1919	54.09	15.63	5.87	2.50	[1].30	1.62	3.69	83.10	100.60	17.50
ELEVEN COMPANIES.										
1914	19.64	6.69	2.85	1.61	0.39	0.67	2.31	34.16	37.44	3.28
1919	53.60	14.85	5.90	1.62	[1] 1.17	.90	5.11	80.81	99.58	18.77

[1] Equivalent to deduction from cost.

Percentage of items of cost to total cost.—As a preliminary to the discussion of the relationship existing between increases in prices realized by manufacturers and increases in the various items of cost, it is important to know what part of the total cost is represented by each of the various items. The following table contains an analysis of the average cost of sales for all yarns for 8 companies for the years 1914 to 1919, inclusive, and for 11 companies for 1914 and 1919 only. It shows by years the percentage relation between the total cost of

sales and the cost of raw cotton, labor, other manufacturing expense, depreciation, general and administrative expense, packing and selling expense, and variation in finished yarn inventory.

TABLE 7.—*Percentage of total cost of sales represented by items of cost for 8 companies, by years, 1914 to 1919, and for 11 companies, 1914 and 1919.*

EIGHT COMPANIES.

Year.	Raw cotton.	Labor.	Other manufacturing expense.	Depreciation.	Inventory variation.	General and administrative.	Packing and selling.
	Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
1914	59.1	18.5	8.7	3.9	2.2	2.4	5.1
1915	59.3	19.8	9.3	4.4	0.5	1.9	4.8
1916	63.2	18.7	8.9	4.7	[1] 2.2	2.1	4.6
1917	64.6	17.0	8.1	4.0	[1] 1.2	2.2	5.3
1918	66.2	16.2	7.2	3.3	0.6	1.7	4.8
1919	65.1	18.8	7.1	3.0	[1] 0.4	1.9	4.5
ELEVEN COMPANIES.							
1914	57.5	19.6	8.3	4.7	1.1	2.0	6.8
1919	66.3	18.4	7.3	2.0	[1] 1.4	1.1	6.3

[1] Decrease.

Of the total cost of sales for the eight identical companies shown for all six years, raw cotton comprised from 59.1 to 66.2 per cent; labor from 16.2 to 19.8 per cent; other manufacturing expense from 7.1 to 9.3 per cent; depreciation from 3.0 to 4.7 per cent; general and administrative expense from 1.7 to 2.4 per cent; and packing and selling expense from 4.5 to 5.3 per cent.

In certain years inventory valuations were reduced and the amount by which they were reduced is equivalent to an addition to the cost of the yarn sold during the year amounting to from 0.5 to 2.2 per cent of the total cost of the sales. In other years inventory values increased, and the amount of the increase is equivalent to a deduction from the cost of yarn sold amounting to from 0.4 to 2.2 per cent.

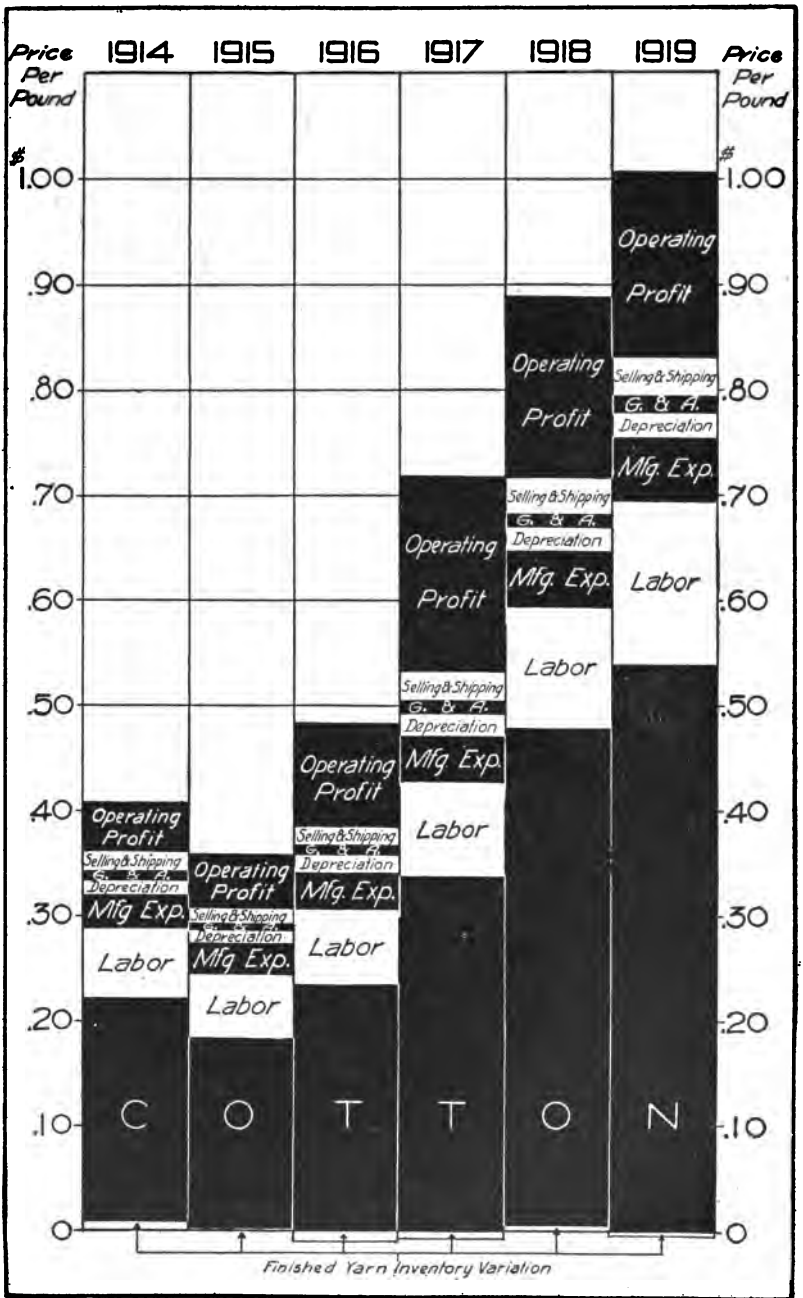
For the 11-company group the percentages for cotton, labor, and other expenses do not differ greatly from those shown for the 8-company group.

Throughout the ensuing discussion of the advancing cost in relation to prices it is important to bear in mind that the two largest items of cost are cotton and labor. During the period covered these two items comprise from 77.6 per cent of the total cost of sales in 1914 to 83.9 per cent in 1919, leaving less than 23 per cent in any year to the remaining five items shown in the table. Incidentally, these two items of cost show the largest relative increases in 1919, and therefore are the most important in subsequent consideration of the advance in prices in relation to advancing costs from 1914 to 1919.

INCREASE IN PRICES AND PROFITS IN RELATION TO COSTS.—Chart VII (following) shows direct comparisons of the movements of average costs, prices, and profits in cents per pound, shown in Table 7, for the 8 companies for each year from 1914 to 1919. All costs per pound decreased in 1915, but thereafter increased each year. Total cost of sales, including inventory variation, cotton,

CHART VII COTTON YARNS

COSTS, PRICES AND PROFITS PER POUND
EIGHT IDENTICAL COMPANIES. 1914-1919



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labor, manufacturing expense, depreciation, general and administrative expense, and selling and shipping expense decreased materially in 1915, the greater part of the decrease occurring in cost of cotton. In 1916 and succeeding years every item showed marked increases.

In 1915 the prices at which yarns were sold failed to decrease quite as much as total costs. In 1916 and 1917 they increased more rapidly than total cost, thereby laying the basis for the highest average profit of the period, 18.54 cents per pound, which was realized in 1917. In 1918 the average prices realized failed to advance quite as rapidly as costs, and average profits per pound therefore fell to 17.22 cents per pound. In 1919 average prices realized advanced somewhat more rapidly than total costs resulting in a profit per pound of 17.50 cents, only a slight increase over 1918, but a very large increase over the average profit of either 1914 or 1915.

Relative costs, prices, and profits.—A clearer idea of the relative movements of costs, prices, and profits than is shown in the preceding table and chart is to be gained from Table 8, which shows an index number analysis of the movement of average costs, prices, and profits for 8 identical companies for each year from 1914 to 1919 and for 11 companies for 1914 and 1919, using the year 1914 as the base period. In the first three columns are shown the relative increases or decreases in costs, prices, and profits based on the figures shown for eight companies in Table 6 above for each year. The remaining five columns give a similar analysis of the increases or decreases in the various items entering into total cost of sales. The relative costs shown in the last five columns are based on those shown in Table 6, except that for convenience "other manufacturing expense" and "depreciation" are combined for the computation of the relatives, and inventory variation is omitted.

TABLE 8.—*Index number analysis of average cost of sales, average selling price, and average net operating profit per pound for 8 companies, by years, 1914–1919, and for 11 companies, 1914 and 1919.*

EIGHT COMPANIES.

Year.	Average cost, prices, and profits.			Analysis of average cost of sales.				
	Cost of sales.	Selling price.	Net profit from sales.	Cotton.	Labor.	Other manufacturing expense.	General and administrative expense.	Packing and selling expense.
1914	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1915	85.1	88.4	115.5	85.3	90.9	93.2	67.0	79.8
1916	106.5	119.0	221.6	113.7	107.3	115.6	94.3	96.2
1917	147.4	177.2	421.4	161.0	134.8	142.5	135.2	153.0
1918	198.4	219.4	391.4	222.2	172.7	166.3	142.0	187.4
1919	230.2	248.4	397.7	253.5	233.3	184.4	184.1	201.6
ELEVEN COMPANIES.								
1914	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1919	236.6	266.0	572.3	272.9	222.0	168.6	134.3	221.2

The table shows decreases in all items except profits in 1915, after which year there are progressive increases in costs and prices up to

1919. Profits per pound increased steadily from 1914 to 1917, when they reached their highest point. In 1918 they decreased somewhat and in 1919 again moved upward, though not to the high level of 1917.

Chart VIII (opposite) shows a comparative analysis of relative costs, prices, and profits for the 8 companies shown on Table 8. The chart, like the table, is divided into two sections, the first section showing a comparison of the movement of the average price per pound realized in relation to the movement of each of the items entering into total cost of sales, and the second showing the relative movement of total cost of sales, average selling price, and average net operating profit per pound.

Referring to the section of the chart giving the comparison of the relative movements of the average selling price and average costs, it is seen that selling price and cotton cost maintained a close relationship throughout the period covered. Cotton cost represents approximately 60 per cent of the total cost and shows the largest increases throughout the period. Consequently, by advancing with cotton cost, prices outdistanced other costs and laid the basis for the high profits of 1917 and succeeding years. In 1915 prices were not reduced to the same extent as cotton. In 1916 and 1917 they advanced more rapidly, and in 1918 and 1919 slightly less rapidly than cotton. In 1919 labor cost made the largest relative advance of any item, but it failed to reach the level of prices, and of cotton by nearly 20 points.

In the second part of the chart the relative movement of prices, total cost of sales, and net operating profits per pound are shown. In 1915 cost of sales fell somewhat more than prices, thereby resulting in an increase in profits per pound. In 1916 and 1917 prices advanced more rapidly than total cost of sales, while profits increased sharply to their high point for the period. In 1918 cost of sales advanced somewhat more than prices, thereby decreasing the profits per pound, while in 1919 prices realized again advanced slightly more than cost of sales, thereby increasing profits to a very slight extent.

The mere fact that profits per pound for 1917, 1918, and 1919 were four times as great as in 1914 is not to be regarded as absolutely conclusive evidence of unreasonable prices or profits in those years. Consideration of the reasonableness of prices in the years of highest profits per pound is deferred to Chapter V, in which the total earnings of those years are compared to the total capital invested.

It is, however, important to note that the average relative price of 248.4 for the eight companies, representing an increase of 148.4 per cent over 1914, is markedly less than the average relative price of 345, representing an increase of 245 per cent in the current market prices of the 17 typical yarns considered in Chapter III. It is thus seen that, although the average actual selling price increased more than total cost of sales, it did not increase as rapidly as the average quoted current market prices of a series of 17 selected yarns during the calendar year 1919. This difference is due to the general practice followed by manufacturers of selling their goods on long-term contracts, which tend to show lower average actual selling prices (realizations) per pound in an advancing market than are indicated by the average of current quotations.

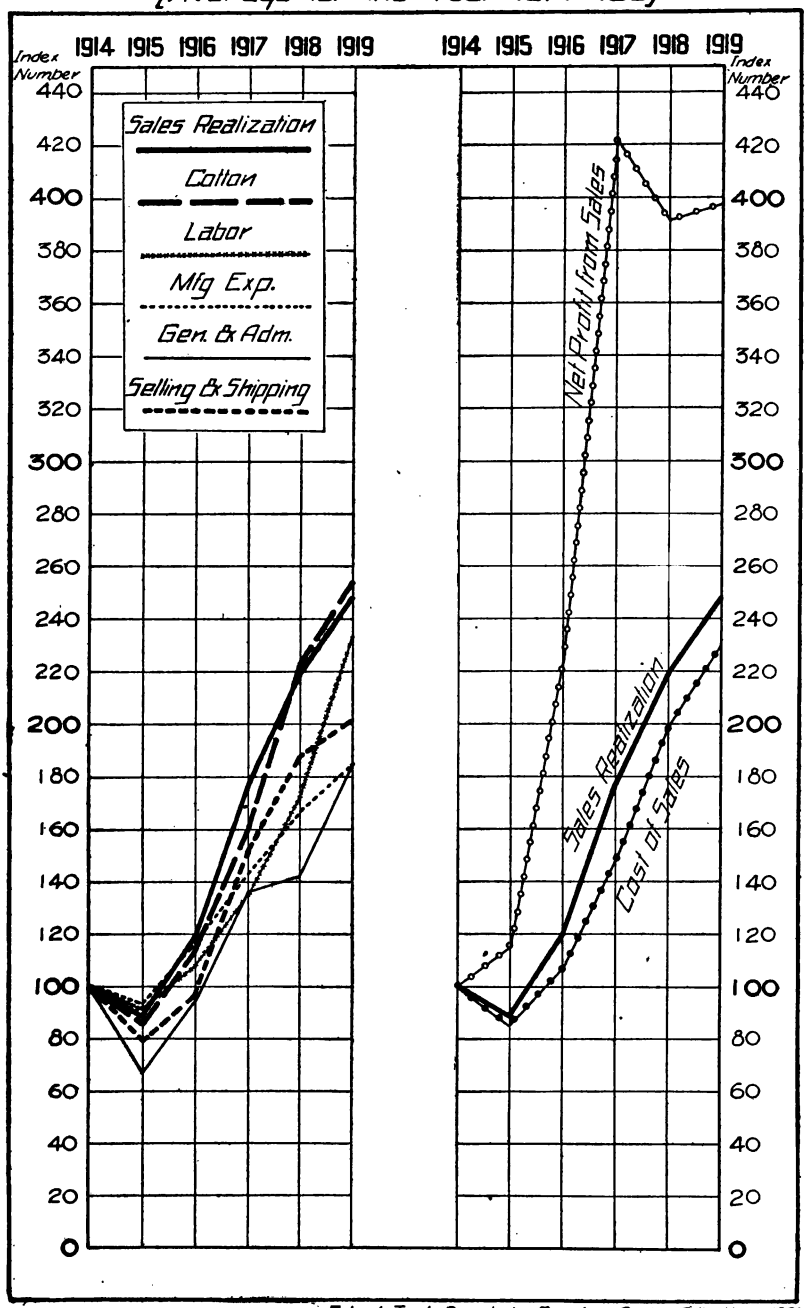
The smaller relative price advance is rendered even more striking by the fact that the base periods used in computing the relatives for

CHART VIII

COTTON YARNS

Relative Costs, Prices and Profits Per Pound, Eight Companies, 1914–1919.

[Average for the Year 1914=100]



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market prices and those for the actual prices realized by the companies differ somewhat. For published market prices the base year is the cotton year August 1, 1913, to July 31, 1914. This period does not include the slump in prices of the last five months of 1914. For the eight companies their own 1914 financial years are used. Seven of the companies begin their financial years on January 1, while the eighth begins its year on May 1. Consequently the base year on which the manufacturer's average relative price is computed includes the calendar year 1914 for seven companies and the last eight months of 1914 and the first four months of 1915 for the eighth company. Since prices slumped sharply following the outbreak of the war, the inclusion of the latter months of 1914 would tend to reduce somewhat the average price realized by manufacturers as compared with those of the base period for market prices.

Again in 1919 the inclusion of the first four months of 1920 for one company tends to increase the average price realized by manufacturers, as it was during this period that combed-yarn prices practically reached their maximum. Lowering the average price of the base year and increasing the average price of 1919 tends to make the relative prices for manufacturers higher in the latter year. Consequently the failure of manufacturers' relative prices to increase as much as market quotations by nearly 100 points is rendered even more striking.

AVERAGE COSTS, PRICES, AND PROFITS, FIRST AND SECOND HALVES OF 1919.—During the second half of 1919 prices realized by yarn manufactuers were materially higher than during the first half of the year. In order to ascertain whether the higher prices realized were caused by correspondingly increased costs in the second half of the year segregation of costs and sales data by six-month periods for the year 1919 was made for those companies keeping their records in such form as to make segregation possible. Owing to the fact that it is not the general practice of manufacturers to take inventory and close their books in the middle of the year it was possible to secure complete semiannual cost reports for only 5 companies of the 12 for which reports were secured for 1919. The results for these 5 companies for the first and second halves of 1919 are shown in Table 9.

TABLE 9.—*Average costs, prices, and profits per pound for 5 combed-yarn manufacturers for the first and second halves of the year 1919.*

Item.	First half.	Second half.	Increase second half over first half.	
			Cents per pound.	Per cent.
Raw cotton	45.86	50.16	4.30	9.4
Labor	9.26	12.35	3.09	33.4
Other manufacturing expense	4.31	5.85	1.54	35.7
Depreciation	1.94	2.28	.34	17.5
Finished yarn inventory variation	.74	[1] 1.67	.....	.....
General and administrative expense	.98	1.06	.08	8.2
Packing and selling expense	3.06	4.06	1.00	32.7
Total cost of sales	66.15	74.09	7.94	12.0
Average selling price	76.69	96.53	19.84	25.9
Net operating profit	10.54	22.44	11.90	112.9

[1] Deduction from cost of sales.

The five companies included in the above tabulation are representative companies, but their number is so small that the results shown are to be regarded rather as indicative of the trend of costs, prices, and profits in the second half of the year than as completely representing or measuring the increase for all companies in the second half as compared with the first half of the year.

During the second half of the year 1919 cotton, labor, manufacturing expense, depreciation, general and administrative expense, and packing and selling expense of the five companies all show increases per pound. Finished yarn inventory variation representing the increase in inventory values between the two halves of the year becomes a deduction from the average cost of sales in the second half. The net result of combining these various items was an increase of 7.94 cents per pound in cost of sales. The increase in average selling price during the last six months of the year, amounting to 19.84 cents per pound, more than compensated for the increased cost, so that the average net profit per pound increased from 10.54 cents per pound in the first to 22.44 cents per pound in the second half of the year.

Expressed in terms of percentages, raw cotton cost increased 9.4 per cent; labor, 33.4 per cent; other manufacturing expense, 35.7 per cent; depreciation, 17.5 per cent; general and administrative expense, 8.2 per cent; and packing and selling expense, 32.7 per cent. Total cost of sales, including the above items and inventory variation, increased 12 per cent, the average selling price increased 25.9 per cent, and net profit increased 112.9 per cent in the second as compared with the first half of the year.

It is thus seen that although the five manufacturers were operating at higher costs in the second half of the year, their average sales realization was sufficiently increased to yield an average net profit per pound more than twice that of the first half of the year.

The production and sales data upon which the preceding discussion has been based include a certain quantity of carded yarns varying from about 6 per cent to 27 per cent for different groupings of companies in different years. (See Table 3.) As previously stated it costs more to produce combed yarns than carded yarns owing to the introduction of additional processes involving added labor cost and larger loss of raw material in the form of waste.

ESTIMATED COSTS IN RELATION TO PRICES REALIZED BY COUNTS.—The cost of manufacturing either combed or carded yarn varies materially with the count; the raw material used; the ply, and to a less extent with the type of yarn (hard or soft twist), and the method in which it is put up for the market. Prices realized likewise always differ more or less with the count, the type, the ply, the raw material used, and the method of put-up. During the period of price advance the prices realized for certain counts, types, and plys of combed yarns increased more than others and the price spread between counts became greater in the latter part than at the beginning of the period.

Because of the unequal price advances occurring on different counts, it would have been desirable for a complete answer to the resolution to have secured accurate information on costs by counts, but it was found impossible to secure data sufficiently accurate or extensive

to give results by counts that could be relied on as sufficiently authoritative or as representative.

The accurate determination of count costs necessitates complete departmental cost keeping throughout the mill covering raw material, waste, goods in process, labor, manufacturing expense, and other items. Inquiry developed the fact that although accurate records of total costs were kept in recent years by all companies visited, few attempted to keep their costs by departments, and only two or three of those keeping departmental costs attempted to compute from them their costs by counts with any regularity.

As a basis for determining what their prices shall be, manufacturers generally rely on estimates of costs made from time to time and based on current mill experience and the market price of cotton at the time the estimate is made. In some cases these estimates are based on mill records showing departmental production and costs while in others they are little more than the mill superintendent's estimate based on his intimate knowledge of what is being made at the time. The basis for such estimated costs may be different in each mill, and the results therefore be far from comparable. Such estimates can not be checked into the profit and loss statements of the companies making them, and although they may be adequate to the needs of manufacturers for price-making purposes, they are of little value for establishing costs by counts that could be used for the purpose of this report.

In its effort to secure comparable costs by counts, the Commission, therefore, avoided the use of these estimates, made upon different bases and not "tying in" to the profit and loss accounts of the companies. Instead, it sought to make an apportionment of the total costs of each company for each year over the corresponding poundages of the various counts produced. This was done on the basis of standard machine rates of production for each count in the various departments of the mill. The ideal basis for such apportionment would be the actual productions obtained on various machines in the daily operation of the mill. Since mill records did not in most cases yield such data, machine production rates given in standard tables published by makers of textile machinery were used.

Actual mill practice may vary considerably from the speeds and productions shown in the published tables, but the actual productions attained in practice, though larger or smaller than those shown in the tables, will generally vary from count to count for each individual mill by practically the same ratios as those shown in the tables. Since it is really on these ratios that the apportionment of costs as between counts is made, the mere fact that productions attained in practice are different from those on which the apportionment is made will not introduce any error into the apportionment provided the ratios existing between counts are essentially the same in both cases.

The method used yields costs based on figures from the books of the companies and computed on the same basis of apportionment for all. The segregations made are incomplete, as it was impossible to apportion cotton costs for certain companies by lengths of staples used in the manufacture of different counts, or different ranges of

counts, and also in that certain processes prior to spinning are grouped and the average cost per pound through these processes is used.

Most of the 12 companies covered specialized on a comparatively narrow range of counts. For this reason the weighted average costs by counts that can be shown for many counts include an insufficient number of companies to insure the representativeness of the costs for the industry as a whole.

Though the costs are not regarded as fully representative or complete because of the limitations outlined above, the weighted average costs, prices, and profits per pound for certain selected counts of yarn for which the results appear to be most representative are included at the end of the report as Exhibit VI, as it is felt that they may have some value to the industry in suggesting the desirability of individual manufacturers more generally computing costs by counts in order that they may know periodically what counts have been yielding the greatest profit.

If, instead of productions from published tables, each manufacturer used the actual productions attained in his mill, the value of the data would be greatly enhanced. The costs would point out what counts the mill organization produces most efficiently and upon which it should therefore specialize. They would also indicate what counts are produced at unduly high costs, and for which reductions in cost may be possible through experimentation in the use of different yarn organizations.

In a general way the incomplete results shown in Exhibit VI indicates certain trends, but these trends can not be confidently asserted for the industry as a whole because not enough companies are covered on the different counts. What appear to be trends or essential differences may be affected by special conditions in the case of the few companies shown, and might not be borne out if the study had been based on the records of a greater number of companies.

As would naturally be expected costs, prices, and profits by counts show essentially the same trends as those shown by the average cost per pound for all yarns produced (see Table 7), though in varying degrees. Costs in every case decreased in 1915 and thereafter increased year by year to 1919, when they were at their maximum. Prices generally followed the same trend, failing to decrease as much as costs in 1915, and thereafter generally increasing more rapidly than costs, thereby laying the basis for greatly increased profits in the later years.

The highest profits of the period for different counts, however, occurred in different years, for some counts in 1917, for others in 1918, and for still others in 1919. It is thus seen that although for the total production of all companies the year 1917 was the year of highest average profit per pound for the total production of all companies, the results for certain individual counts are quite different, as in some cases 1918 or 1919 was the year of largest profit per pound.

Marked differences in costs, prices, and profits per pound are shown in the costs by counts. Fine yarns cost more to produce, sell at higher prices, and yield higher profits per pound than coarse yarns throughout the period. Certain other characteristic differences in costs arising out of the method of putting up for market, etc., are reflected in the higher prices per pound. Such comparisons, though

of considerable interest to the industry, are of secondary importance in answering the resolution, and on account of the limitations placed on the accuracy of conclusions drawn from them because of the incompleteness of segregation of costs, and the small number of companies shown for each count, further discussion of them is omitted.

DISTRIBUTION OF THE PURCHASER'S DOLLAR.—Another angle from which the question of increasing costs and prices may be viewed is that of the distribution of the purchaser's dollar to each of the items of cost and profit. Table 10 shows for two groups of companies the part of the purchaser's dollar absorbed in the various items of cost and in net operating profit on sales. The figures shown are based on the average costs, prices, and profits presented in Table 7, reduced to the basis of costs, prices, and profits per dollar of sales. A slight change has been made in handling the item of "finished yarn inventory variation" which has been prorated to cotton cost, labor cost, and other manufacturing expense in proportion to the importance of each of these items in the total cost of mill production per dollar of sales. The table shows the analysis for two groups of companies; the first group consisting of the 8 companies throughout the six years 1914 to 1919, and the second consisting of the 11 companies for the years 1914 and 1919 only. In the second group the results are shown separately for 7 southern companies and 4 New England companies as well as for the 11 companies as a whole.

TABLE 10.—*Analysis of each dollar of sales of yarn for 8 companies, by years, 1914–1919, and for 11 companies, 1914 and 1919.*

EIGHT COMPANIES.

Year.	Average pounds sold for $1.	Cotton cost.	Labor cost.	Other manufacturing expense.	General and administrative expense.	Packing and selling.	Cost of sales.	Net profit on sales.
		Cents.	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*
1914	2.47	54.0	16.9	11.5	2.2	4.5	89.1	10.9
1915	2.79	51.1	17.1	11.9	1.6	4.1	85.8	14.2
1916	2.08	49.3	14.5	10.6	1.7	3.7	79.8	20.2
1917	1.39	47.3	12.4	8.9	1.7	3.9	74.2	25.8
1918	1.13	53.7	13.1	8.6	1.4	3.8	80.6	19.4
1919	.99	53.6	15.4	8.3	1.6	3.7	82.6	17.4

ELEVEN COMPANIES.

1914.								
11 companies	2.67	53.0	18.1	12.1	1.8	6.2	91.2	8.8
7 southern companies	2.59	51.0	13.4	12.9	2.4	6.8	86.5	13.5
4 New England companies	2.70	53.8	19.3	11.9	1.6	6.0	92.6	7.4
1919.								
11 companies	1.00	52.9	14.7	7.5	.9	5.1	81.1	18.9
7 southern companies	1.04	50.6	13.4	8.9	1.8	5.8	80.5	19.5
4 New England companies	1.00	53.4	14.8	7.2	.8	5.0	81.2	18.8

In connection with this table it is important to bear in mind that the amounts shown represent the yearly changes in the distribution of the purchaser's dollar to the various items that make up the purchase price and not the actual changes in basic production costs. For instance, the lowest amount for cotton and labor per dollar of sales is shown for 1917. This does not mean that the actual cost of

cotton and labor per pound of yarn was less in 1917 than in preceding years. The fact is that both increased, but not to the same extent that prices of yarn had advanced, hence their lessened importance in the distribution of the purchaser's dollar.

A notable feature of the table is the striking decrease in the average quantity of yarn that a dollar purchased in the later years of the period. In 1914 it purchased approximately 2½ pounds of yarn, but in 1919 about 1 pound.

Considering the 8-company group, it will be seen that in 1914, when $1 purchased on the average 2.47 pounds of yarn, the distribution of the dollar to each of the items of cost was as follows: Cotton, 54 cents; labor, 16.9 cents; other manufacturing expense, 11.5 cents; general and administrative expense, 2.2 cents; packing and selling expense, 4.5 cents; making a total cost of sales of 89.1, leaving 10.9 cents for net operating profit on sales. In 1917, the year of the largest profit per dollar of sales, a dollar purchased 1.39 pounds of yarn, and its distribution to each of the cost items was as follows: Cotton, 47.3 cents; labor, 12.4 cents; other manufacturing expense, 8.9 cents; general and administrative expense, 1.7 cents; packing and selling expense, 3.9 cents; a total of 74.2 cents, leaving 25.8 cents per pound for net operating profit. In 1919, when the purchaser's dollar bought only 0.99 of a pound of yarn, cotton represented 53.6 cents; labor, 15.4 cents; other manufacturing expense, 8.3 cents; general and administrative expense, 1.6 cents; packing and selling expense, 3.7 cents; a total cost of sales amounting to 82.6 cents, leaving 17.4 cents for net operating profit.

The figures for the larger group of 11 companies bear out in the main the results shown for the smaller group during the years 1914 and 1919, the only years that are comparable. In 1914 the purchaser's dollar would buy one-fifth of a pound more yarn in the 11-company group than in the 8-company group, and the profit per dollar of sales was somewhat less. In 1919, however, the amount of yarn that a dollar would purchase in each group was practically the same, and the net operating profit was greater for the 11-company group by 1.5 cents.

Considering the movement of the various items of cost for the 8-company group, a rather striking fact is the uniformity in the proportion of the purchaser's dollar absorbed by cotton and labor as the purchasing power of the dollar in terms of pounds of yarn decreased. The decrease in the relative importance of cotton cost from 54 cents in 1914 to 47.3 cents in 1917 is due to a more rapid increase in prices than in cost of cotton. However, in the last two years yarn prices advanced less rapidly than cotton cost, with the result that the proportion of this cost in the distribution of the dollar of sales increased. A peculiarity of labor cost is that owing to the failure of wages to decrease with cotton at the outbreak of the war it absorbed its maximum part of the purchaser's dollar in 1915. Labor cost, like cotton cost, failed to advance as rapidly as prices in 1917, thereby resulting in the lowest labor cost per dollar of sales in that year. In the last two years, however, labor cost increased more rapidly than prices, and therefore absorbed relatively more of the purchaser's dollar.

Other manufacturing expense, general and administrative expense, and packing and selling expense all increased in absolute amount per pound of yarn for the period as a whole. Their decreasing share

in the distribution of the purchaser's dollar is entirely due to their failure to increase as rapidly as yarn prices. Notwithstanding the steadily decreasing proportion of the above minor items of cost, the profits of 1918 and 1919 were less than those of 1917, owing to the fact that the two major items of cost, cotton and labor, increased more rapidly than the prices realized for yarns. (See Chart VIII.)

For the 11-company group a segregation is shown for 7 southern and 4 New England companies. In both 1914 and 1919 the cotton cost per dollar of sales for the southern group was less than that for the New England group. This was due partly to the shorter freight haul on cotton to the southern mills and partly to the fact that the mills of the southern group, with one exception, used upland cotton almost exclusively while the New England group used a certain amount of the higher priced Egyptian, sea-island, and other staples. Labor cost, too, was less for the southern companies in both years. All other expenses and the profit per dollar of sales for the southern companies were greater than those for the New England companies.

SUMMARY.—For the period as a whole, average costs, prices, and profits per pound increased greatly as compared to those of 1914. Cotton cost, comprising from three-fifths to two-thirds of the total cost of sales in different years, increased most, and labor, representing somewhat less than one-fifth of the total cost, shows the next largest increase for the entire period. Together these two items represent 77.6 per cent to 84 per cent of the total cost of sales in different years. Although the increases for the remaining items of cost were marked they were not so great as those for cotton and labor.

In terms of percentages based on 1914, average costs per pound were 14.9 per cent less in 1915, average prices were 12.6 per cent lower, and average profits were 15.5 per cent greater than in 1914. In 1917, the year of highest profits, average costs were 47.4 per cent greater, prices were 77.2 per cent greater, and profits were 321.4 per cent greater than in 1914. In the last two years costs and prices continued to increase, until in 1919 costs were 130.2 per cent greater, prices were 148.4 per cent greater, and profits were 297.7 per cent greater than in 1914.

Throughout the six years the average selling price followed quite closely the advances in cotton cost, which in turn showed the largest advances of all cost items. As compared with cotton cost, prices decreased slightly less in 1915, but increased considerably more in 1916 and 1917, thereby resulting in the high profits of 1917. In 1918 and 1919 prices increased somewhat less than cotton, but more rapidly than any other item of cost. Consequently, profits per pound in these two years, though slightly less than in 1917, were still nearly 300 per cent greater than in 1914.

Owing to the increase in prices for the period covered the average quantity of yarn purchasable with $1, as shown for the eight companies for which reports were secured in all six years, decreased from approximately 2.5 pounds in 1914 to slightly less than 1 pound in 1919. Throughout the years 1914 to 1917 the proportion of the purchaser's dollar absorbed by each of the items of cost decreased while the amount absorbed by profit increased each year from 10.9 cents in 1914 to 25.8 cents in 1917. In 1918 and 1919 the part absorbed by cotton and labor increased while that absorbed by other items of expense continued to decrease as prices advanced. The part absorbed

by profit, however, decreased to 19.4 cents in 1918 and 17.4 cents in 1919.

The prices realized by manufacturers increased less than the open market prices of yarns. This was due to the practice generally followed by manufacturers of contracting the bulk of their production for deliveries extending over a considerable future period. Consequently manufacturers, in so far as they made deliveries on such contracts, were unable to take full advantage of the rising market. Prices, however, advanced more rapidly than costs, thereby resulting in profits which show very great increases over the rather low profits of 1914.

During the second half of 1919 the average selling prices were higher than during the first half of the year. Costs failed to advance as much as prices in the second half of the year and consequently profits per pound were greatly increased. The reasonableness of these increases in terms of rate of return on capital invested is discussed in Chapter V.

CHAPTER V.

INVESTMENT AND EARNINGS OF COMBED-YARN MANUFACTURERS.

In the preceding chapter the profits of combed-yarn manufacturers have been discussed in terms of average profit per pound of yarn sold (pp. 42–50) and average profit per dollar of sales (pp. 54–56). Neither of the above methods of statement shows the relation between the profits and the capital investment required to conduct the yarn business. Such a comparison is obviously an important feature of any inquiry regarding the reasonableness of prevailing prices, as it is, in the last analysis, the chief basis for determining whether the profits are fair or reasonable.

The following discussion of profits in relation to investment is based on total profits from both combed and carded yarns produced, and total investment employed in their manufacture because, as previously stated (see p. 41), it was impossible to segregate carded yarn costs from total costs, or investment employed in carded yarn manufacture from total investment. The effect on the rate of earnings, however, was apparently unimportant.

CAPITAL INVESTMENT.—The following table shows an analysis of the total capital invested in the cotton-yarn business during the years 1914 to 1919, inclusive, for certain representative companies. The first part of the table shows by years for a group of eight identical companies the relation of capital stock, surplus, and borrowings to the total investment. The second part of the table shows similar data for all companies from which information was secured for the respective years.

TABLE 11.—*Analysis of book investment employed in yarn production, by years, 1914–1919, for eight identical companies and for all companies from which information was secured.*

EIGHT COMPANIES.

Year.	Number of companies.	Total investment.	Capital stock.		Surplus.		Borrowings.	
			Amount.	Per cent of total investment.	Amount.	Per cent of total investment.	Amount.	Per cent of total investment.
1914	8	$3,247,325	$1,804,000	55.5	$392,459	12.1	$1,050,866	32.4
1915	8	3,467,638	1,804,000	52.0	439,861	12.7	1,223,777	35.3
1916	8	3,493,573	1,804,000	51.6	678,161	19.4	1,011,412	29.0
1917	8	4,112,750	1,935,600	47.1	1,241,508	30.2	935,642	22.7
1918	8	4,987,943	2,110,200	42.3	1,901,811	38.1	975,932	19.6
1919	8	5,131,320	2,110,200	41.1	1,633,085	31.8	1,388,035	27.1

ALL COMPANIES.

1914	11	$11,577,892	$6,404,000	55.3	$1,124,161	9.7	$4,049,731	35.0
1915	9	3,811,136	2,004,000	52.6	528,776	13.9	1,278,360	33.5
1916	8	3,493,573	1,804,000	51.6	678,161	19.4	1,011,412	29.0
1917	8	4,112,750	1,935,600	47.1	1,241,508	30.2	935,642	22.7
1918	10	5,677,172	2,460,200	43.4	2,170,953	38.2	1,046,019	18.4
1919	12	20,768,365	7,860,200	37.8	5,933,441	28.6	6,974,724	33.6

Owing to the varying number of companies included in the second part of the table a comparison of the total amount of capital invested in the yarn business by years, as shown by the books of the companies, is possible only for the group of eight companies in the first part of the table. The total investment for the eight companies in 1919 was 58 per cent greater than in 1914, and most of this 58 per cent increase occurred in 1917 and 1918. The increase in total investment in 1919 as compared to that of 1914 was made up of a moderate increase in capital stock outstanding, a very large increase in undivided surplus, and a considerable increase in borrowings.

Considering both groups of companies, capital stock represented from 37.8 per cent to 55.5 per cent of the total investment in different years, surplus represented from 9.7 per cent to 38.2 per cent, and borrowings represented from 18.4 per cent to 35.3 per cent. Surplus and borrowings stand in reciprocal relationship to each other, surplus increasing and borrowings decreasing in importance as items of total investment from 1914 to 1918, and surplus decreasing and borrowings increasing in 1919.

NET EARNINGS.—In Table 12 the net earnings of the companies covered are shown by years from 1914 to 1919. The same company groupings are used that were shown in the preceding table on investment. Net earnings for each year are shown in two ways; first, the total amount of earnings from the yarn business before the deduction of interest paid for the use of borrowed capital; and second, the amount of earnings after the deduction of interest on borrowed money. The first earnings figure is directly comparable to the total book value of capital invested, including capital stock, surplus, and borrowed money, but excluding outside investments; while the second figure is comparable to the stockholder's investment (or equity) in the business as represented by the book value of capital stock and surplus, but excluding borrowings and outside investment.

TABLE 12.—*Earnings of combed cotton yarn manufacturers, by years, 1914–1919 for 8 identical companies and for all companies from which information was secured.*

EIGHT COMPANIES.

Year.	Net earnings.			
	Number of companies.	Before deducting interest on borrowed money.	After deducting interest on borrowed money.	Interest paid on borrowed money.
1914	8	$213,071	$145,683	$67,388
1915	8	418,540	335,959	82,582
1916	8	893,869	834,510	59,359
1917	8	1,553,494	1,491,703	61,791
1918	8	1,325,727	1,256,597	69,130
1919	8	1,318,472	1,222,474	95,999

ALL COMPANIES.

1914	11	$482,031	$242,750	$239,281
1915	9	439,264	355,756	83,507
1916	8	893,869	834,510	59,359
1917	8	1,553,494	1,491,703	61,791
1918	10	1,603,847	1,532,490	71,356
1919	12	6,444,777	5,984,993	459,784

For the eight companies for which data were secured for all six years, earnings were greatly increased in each succeeding year as compared to 1914. Whether considered before or after the deduction of interest paid, the amount of earnings was greatest for the year 1917. Total earnings before the deduction of interest paid on borrowed money in 1915 and succeeding years were from about two to over six times as great as in 1914. After the deduction of interest paid on borrowed capital, the earnings of later years were from two and a quarter times to nine and a quarter times as great as in 1914.

In actual amount the interest paid from year to year fluctuated considerably, rising rather sharply in 1915, when borrowings were increased (see preceding table), decreasing with borrowings in 1916 and 1917, and increasing again in 1918 and 1919, when large borrowings were again necessary. In terms of percentages, interest paid, as compared to 1914, was 22.5 per cent greater in 1915, 11.9 per cent less in 1916, 8.3 per cent less in 1917, 2.6 per cent greater in 1918, and 42.5 per cent greater in 1919.

For the second group of companies no comparisons can be made from year to year on account of the varying number of companies shown in each year.

RATES OF EARNINGS ON INVESTMENT.—The following four tables show the rates of return on investments from two viewpoints; first, on the basis of total capital employed, and, second, on the basis of the stockholder's capital employed in the production of yarns.

Earnings on total capital invested by groups of companies.—Tables 13 and 14 show the rates of net operating income before charging interest on borrowings in relation to the total book value of capital employed in yarn production consisting of capital stock, surplus, and borrowings but excluding outside investments.

Table 13 shows the average investment and average earnings for two groups of companies, the first consisting of eight identical companies running throughout all six years and the second for a varying number of companies in different years.

TABLE 13.—*Average rates of earnings of combed cotton yarn manufacturers on the book value of total investment employed in yarn production, by years, 1914–1919.*

[The earnings represent net operating income before charging interest on borrowings. The investment includes capital stock, surplus, and borrowings but excludes outside investments.]

EIGHT COMPANIES.

Year.	Number of companies.	Investment.	Earnings.	Per cent of earnings to investment.
1914	8	$3,247,325	$213,071	6.6
1915	8	3,467,638	418,540	12.1
1916	8	3,493,573	893,869	25.6
1917	8	4,112,750	1,553,494	37.8
1918	8	4,987,943	1,325,727	26.6
1919	8	5,131,320	1,318,472	25.7
Average		24,440,549	5,723,173	23.4

ALL COMPANIES.

1914	11	$11,577,892	$482,031	4.2
1915	9	3,811,136	439,264	11.5
1916	8	3,493,573	893,869	25.6
1917	8	4,112,750	1,553,494	37.8
1918	10	5,677,172	1,603,847	28.2
1919	12	20,768,365	6,444,777	31.0

The first part of the table indicates that for a group of eight identical companies the average yearly rate of return on the total capital employed increased progressively from 6.6 per cent in 1914, the smallest rate of the period, to 37.8 per cent in 1917, the largest rate for any year. In 1918 and 1919 the rate declined to 26.6 per cent and 25.7 per cent, respectively. For the entire six-year period the average rate for the group was 23.4 per cent.

The same general trend is manifested for all companies in the second part of the table. In 1914 the average rate for all companies shown was 2.4 per cent less, and in 1918 and 1919 it was greater than that for the eight company group by 1.6 and 5.3 per cent, respectively. The characteristic difference between the two parts of the table is that in the first part eight companies are shown for each year, while in the second part the number of companies varies from year to year. The inclusion of more companies, however, does not radically change the results in any year except 1919. The same rates occur in both parts of the table for 1916 and 1917 because the same companies are used.

Earnings of individual companies on total capital invested.—The following table shows in detail the annual rates of earnings on total capital invested in yarn production for each company by years from 1914 to 1919. These earnings are computed on the same basis as the average earnings shown in the preceding table and consequently show the range in earnings included in the averages previously discussed.

TABLE 14.—*Rates of earnings on the book value of total investment employed in yarn production, by individual companies and by years, 1914–1919.*

[The earnings represent net operating income before charging interest on borrowings. The investment is the total capital employed including borrowings but excluding outside investments.]

Company No.	Percentage rate.						Average six years.
	1914	1915	1916	1917	1918	1919	
1	4.1	17.5	49.0	53.7	29.2	28.5	30.8
2	18.7	20.6	16.8	45.5	68.7	34.1	35.6
3	1.9	9.4	31.0	38.8	9.0	15.5	16.7
4	2.6	7.4	26.6	45.5	31.3	15.5	22.5
5	11.0	2.7	35.7	46.4	31.9	20.0	25.0
6	16.5	26.4	37.0	45.7	22.1	26.1	29.0
7	.....	.....	.....	.....	31.2	32.6	.....
8	2.9	6.0	.....	.....	47.7	33.6	.....
9	4.9	4.9	11.8	29.3	19.8	29.4	18.5
10	1.3	11.0	24.4	29.0	18.4	25.8	18.7
11	4.5	.....	.....	.....	.....	37.4	.....
12	2.1	.....	.....	.....	.....	25.5	.....

The year 1914 shows the lowest and 1917 the highest rates of earnings for all companies. The largest rate of earnings made by any company, however, occurred in 1918, when Company No. 2 realized 68.7 per cent. The smallest rate, 1.3 per cent, was realized by Company No. 10 in 1914. Of the eight companies for which data were secured for all six years, four made average rates for the entire period in excess of 25 per cent, three made from 18.5 to 22.5 per cent, and one, the lowest of the group, made an average of 16.7 per cent.

The number of companies shown in the table varies from year to year. In 1914, 3 companies of a total of 11 shown made rates of

return in excess of 10 per cent. In 1915, 4 out of a total of 10 companies earned rates in excess of 10 per cent, and in the remaining four years all companies shown realized rates in excess of 10 per cent in each year except 1918, in which 1 company realized but 9 per cent. The number realizing rates in excess of 25 per cent was: 1 of the 11 companies shown in 1915, 5 of the 9 in 1916, all of the 8 in 1917, 6 of the 8 in 1918, and 9 of the 12 in 1919. Four of the eight companies shown in all six years made average returns in excess of 25 per cent per annum for the entire period.

Earnings on stockholders' investment by groups of companies.—Tables 15 and 16 show the rates of earnings represented by net operating income (after charging interest on borrowings) in relation to the stockholder's investment consisting of capital stock and surplus but excluding borrowings and outside investment. The first table shows the total investment and earnings for two groups of companies, as described above.

TABLE 15.—*Average rates of earnings on the book value of stockholders' investment employed in yarn production by combed cotton yarn manufacturers, by years, 1914–1919.*

[The earnings represent net operating income after charging interest on borrowings. The investment is the stockholders' interest (equity, or the net worth), excluding borrowings and outside investments.]

EIGHT COMPANIES.

Year.	Number of companies.	Investment.	Earnings.	Per cent of earnings to investment.
1914	8	$2,196,459	$145,683	6.6
1915	8	2,243,860	335,959	15.0
1916	8	2,482,161	834,510	33.6
1917	8	3,177,108	1,491,703	47.0
1918	8	4,012,011	1,256,597	31.3
1919	8	3,743,284	1,222,474	32.7
Average		17,854,883	5,286,926	29.6

ALL COMPANIES.

1914	11	$7,528,160	$242,750	3.2
1915	9	2,532,775	355,756	14.0
1916	8	2,482,161	834,510	33.6
1917	8	3,177,108	1,491,703	47.0
1918	10	4,631,152	1,532,490	33.1
1919	12	13,793,641	5,984,993	43.4

For the group of eight companies shown in the first part of the table the average yearly rate of return on the book value of stockholders' capital employed in the business increased from 6.6 per cent in 1914, the smallest rate for the six years, to 47 per cent in 1917, the largest rate for any year. The rate decreased to 31.3 per cent in 1918 and increased slightly to 32.7 per cent in 1919. The average rate for the period was 29.6 per cent.

The second part of the table shows a similar trend for all companies as for the eight-company group. The average yearly rate for 11 companies was 3.2 per cent in 1914 as compared to 6.6 per cent for the eight-company group. In 1915 the rate for nine companies was 1 per cent less than for the eight companies. In 1916 and 1917 the same companies occur, hence the rates are the same

in both parts of the table. For 10 companies in 1918 the rate was greater by 1.8 per cent than the rate for the eight-company group, and for 12 companies in 1919 it was greater by 10.7 per cent. It is thus seen that the inclusion of more companies in 1914 tended to lower the average earnings on the stockholder's investment, while in 1919 it tended to increase the average rate materially.

Earnings of individual companies on stockholders' investment.—The following table shows in detail the rates of earnings on stockholders' investment in the yarn business for individual companies by years from 1914 to 1919. Earnings and stockholders' investment are computed on the same basis as in the preceding table.

TABLE 16.—*Rates of earnings on the book value of stockholders' investment employed in yarn production, by individual companies and by years, 1914–1919.*

[The earnings represent net operating income after charging interest on borrowings. The investment is the stockholders' interest, excluding borrowings and outside investments.]

Company No.	1914	1915	1916	1917	1918	1919	Average 6 years.
1	3.4	21.9	56.0	58.3	33.7	34.9	36.6
2	3.0	32.6	26.3	50.5	81.1	38.0	46.8
3	[1].05	10.9	36.3	51.4	10.2	18.6	20.7
4	.1	8.4	42.1	65.0	40.3	19.0	31.1
5	12.3	1.2	45.5	54.9	39.1	30.3	32.2
6	18.3	28.5	38.4	47.2	23.0	29.1	31.0
7	.....	.....	.....	.....	31.2	32.6	.....
8	2.6	6.9	.....	.....	57.6	36.8	.....
9	4.5	4.4	14.3	46.3	28.9	58.1	27.0
10	[1] 2.05	13.5	33.7	36.0	19.1	28.3	22.6
11	3.8	.....	.....	.....	.....	58.2	.....
12	.02	.....	.....	.....	.....	34.8	.....

[1] Loss.

The table shows rates of earnings increasing greatly from 1914 to 1917. In 1914, the year of lowest earnings, two companies incurred losses of 0.05 and 2.05 per cent, respectively, while the maximum earnings for any company in the year were 18.3 per cent. In 1917 the smallest earnings for any company shown were 36 per cent and the largest 65 per cent. In 1918 occurred the highest rate of earnings for any individual company for the six years amounting to 81.1 per cent. For most of the companies, however, 1918 and 1919 showed lower rates of earnings than 1917.

Of the eight companies for which data were secured for all six years, five made an average rate exceeding 30 per cent annually and the rates of the remaining three companies exceeded 20 per cent. The smallest average rate of return for the six years for any individual company was 20.7 per cent for Company No. 3, and the largest rate was 46.8 per cent for Company No. 2. Of the remaining six companies, four exceeded a rate of 30 per cent, and the other two made 22.6 and 27 per cent, respectively.

CAPITAL INVESTMENT AND EARNINGS OF COMPANIES GROUPED BY RANGES OF COUNTS PRODUCED.—In the manufacture of cotton yarns the investment per spindle required for coarse counts is practically the same as that required for fine counts. The rate of production per spindle for fine counts, however, is much slower and, consequently, a considerably larger profit per pound for fine yarns is necessary to yield the same rate of profit on investment that a smaller profit per

pound for coarser yarns would yield. In Exhibit VI this point is discussed more in detail, and it is also shown that the average estimated net profits per pound realized by manufacturers on certain fine counts were materially higher than those realized on coarse counts.

With the object of ascertaining whether there was any marked difference in rates of earnings for companies making different ranges of counts Table 17 has been prepared. In this table, in addition to the total investment, total earnings and average rate of earnings to total capital invested for all companies, the total investment, total earnings, and rates of earnings for these groups of companies arranged according to the average count of yarn produced are shown. The average count produced by each company is determined by multiplying the total production of each count spun by its count, the resulting products are added together, and the sum divided by the total production of all counts to obtain the average count.

The first group includes all companies making an average count of 30 or less, the second includes companies whose average count falls between 31 and 55, and the third group those companies whose average count is above 55.

TABLE 17.—*Total investment and earnings, by years, 1914–1919—all companies, and companies grouped by ranges of counts, as noted in the table.*

Year.	Basis for grouping companies by average counts produced.	Number of companies.	Weighted average count produced.	Investment.	Earnings.	Per cent of earnings to investment.
1914	All counts	11	30	$11,577,893	$482,032	4.2
	Up to 30	4	21	5,462,474	258,175	4.7
	31 to 55	3	46	5,051,039	127,380	2.5
	Over 55	4	59	1,064,380	96,477	9.0
1915	All counts	9	33	3,811,136	439,262	11.5
	Up to 30	3	22	1,869,823	223,303	11.9
	31 to 55	3	42	1,325,500	157,028	11.8
	Over 55	3	61	615,813	58,931	9.6
1916	All counts	8	35	3,493,673	893,868	25.6
	Up to 30	2	24	1,573,047	349,766	22.2
	31 to 55	2	38	1,045,018	239,247	22.9
	Over 55	4	59	875,508	304,855	34.8
1917	All counts	8	37	4,112,750	1,553,493	37.8
	Up to 30	2	24	1,678,311	554,052	33.0
	31 to 55	2	44	1,341,795	493,961	36.8
	Over 55	4	60	1,092,644	505,480	46.3
1918	All counts	10	36	5,677,171	1,603,847	28.3
	Up to 30	3	24	2,095,531	754,948	36.0
	31 to 55	3	42	2,182,084	502,903	23.0
	Over 55	4	59	1,399,556	345,996	24.7
1919	All counts	12	30	20,768,367	6,444,776	31.0
	Up to 30	4	22	11,279,673	4,049,166	35.9
	31 to 55	3	46	7,704,942	2,012,698	26.1
	Over 55	5	60	1,783,752	382,912	21.5

The weighted average count for the total production of all companies varied from 30 to 37 in different years. For those companies whose individual averages were below 30 the weighted average count varied from 21 to 24 in different years. For those whose individual averages fell between 31 and 55 the weighted average varies from 38 to 46 and for those whose individual averages were above 55 the weighted average count varied from 59 to 61.

In 1914, 1916, and 1917 first place as profit makers was held by the companies manufacturing the finest counts. In 1915, 1918, and 1919 this position was occupied by those companies making the coarsest counts. Second place was alternately held by the different groups in the following order: Manufacturers of coarse yarns in 1914, of medium yarns in 1915, 1916, and 1917, of fine yarns in 1918, and of medium yarns in 1919.

It is thus seen that although the price increases on fine yarns in 1918 and 1919 may have seemed very large as compared with those for coarse yarns, fine yarns were yielding less profit to their manufacturers than coarser yarns. This was true notwithstanding the fact that the average net operating profit per pound for fine yarns was markedly greater than that for either medium or coarse yarns in every year except 1919. In the latter year the largest average net operating profit per pound was made on medium counts, while, paradoxical though it may seem, the smallest net profit per pound and at the same time much the largest rate of earnings to capital invested occurred on coarse counts. This is explained by the larger poundage produced per spindle by the coarse-yarn group. The greatly increased demand of the automobile tire industry for coarse combed yarns in 1918 and 1919 is the most important factor underlying the relatively larger increase in coarse-yarn prices, which made it possible for coarse-yarn manufacturers to make the higher rates of profits in those years.

INVESTMENT AND EARNINGS PER SPINDLE.—Table 18 shows an analysis of investment and earnings per spindle for the eight identical companies for which reports were obtained for all six years.

TABLE 18.—*Total investment and earnings per spindle for 8 combed-yarn manufacturers, by years, 1914 to 1919.*

[Based on investment and net operating profit shown in Table 25.]

Year.	Number of companies.	Investment per spindle.	Net operating profit per spindle.	Per cent net operating profit to investment.	Year.	Number of companies.	Investment per spindle.	Net operating profit per spindle.	Per cent net operating profit to investment.
1914	8	$20.07	$1.32	6.6	1917	8	$22.04	$8.33	37.8
1915	8	20.86	2.52	12.1	1918	8	26.73	7.11	26.6
1916	8	19.70	5.04	25.6	1919	8	27.24	7.00	25.7

The table shows clearly that the decreased rate of earnings in 1918 and 1919 was due to two causes: First, to a marked increase in total investment per spindle, including borrowed money required to conduct the yarn business; and second, to a decrease in earnings per spindle in the last two years.

The total investment per spindle increased slightly in 1915, decreased in 1916, and thereafter increased in each year until the end of the period. For the entire six years the total increase in investment per spindle from $20.07 to $27.24 amounted to $7.17, or 35.7 per cent of the 1914 figure. Considerably more than half of this increase occurred in 1918. The greater part of the increase

of the period was due to reinvestment in the business of surplus accumulated in 1917 and preceding years. Reinvestment of surplus was accompanied by decrease in borrowings except in the year 1919. (See Table 11, p. 58.)

Had the net operating profit of 1918 and 1919 equaled that of 1917, the increase in investment alone would have resulted in a decrease in rate of earnings to capital invested for the eight companies. In 1918 and 1919, however, the total net operating income of the eight companies was actually less in amount than in 1917. This was due to a slight decrease in average profit per pound and a somewhat larger decrease in the total number of pounds produced by the eight companies in both years. (See Tables 4 and 5, pp. 41 and 43.) Consequently net earnings per spindle decreased as compared to 1917 by 14.6 per cent in 1918 and 15.9 per cent in 1919. The reduction in rate of earnings to capital invested in 1918 and 1919 is the combined effect, as stated above, of a considerable increase in capital investment per spindle in 1918 and 1919 as compared to preceding years and a decrease in earnings per spindle. Of the two, the increased capital investment is the more important in accounting for the lowered rate of earnings.

In thus increasing their capital investment, largely through the reinvestment of earnings, manufacturers reduced the amount of borrowings necessary to carry on the manufacture and sale of yarn and thereby placed their business in a much stronger position financially than it had been at the beginning of the period. This fact later enabled yarn manufacturers generally to absorb the losses of the latter part of 1920 without any great financial embarrassment.

SUMMARY.—Whatever basis is used for computing the rates of earnings to capital invested for all companies as a single group the results are of the same tenor; a great increase from 1914 to 1917, the year of highest earnings, and somewhat lessened though still very large earnings for 1918 and 1919. In every year there is a considerable spread in the rates of earnings for different companies. This spread becomes more marked in the years of largest earnings. In consequence of the different rates made by different companies, changes in the groupings of companies yield results differing somewhat in degree from year to year, but showing essentially the same trend for the period as a whole.

Grouping the companies by ranges of counts shows that during the early years of the period the highest rates of earnings to total capital invested were made by companies making the finest counts. During the last two years of the period, however, the largest rates of earnings were made by companies making the coarsest counts. This was due to the greatly increased demand of the automobile tire industry for coarse combed yarns even at prices relatively higher than those at which fine yarns were selling during the last two years of the period.

In consequence of the extremely high earnings extending through the period covered and the early months of 1920, all companies were able to build up large surpluses in addition to paying much higher dividends during later years than were paid prior to 1914. The reinvestment of surpluses in the yarn business, either through readjustment of capital stock issues or through their use instead of borrowed money, resulted in a marked increase in capital invest-

ment per spindle, which greatly strengthened the financial condition of the companies and made it possible for them to absorb the losses on inventories resulting from falling prices of cotton and yarns in 1920 without any great financial difficulties.

Since the middle of 1920 the cotton-yarn business has passed through a period of price reduction and liquidation of inventories of both raw materials and yarns, which would undoubtedly have been disastrous to many firms had it not been for the surpluses accumulated prior to May, 1920, when the period of decreasing demand, curtailment of production, and falling prices began. In spite of this slump in the business, however, practically no failures of yarn manufacturers have been reported. On the other hand, many firms continued paying dividends through 1920, in some cases as high as those of the later war years. It is possible that in doing this they were distributing surpluses accumulated during the war period rather than the earnings for the year 1920. No authoritative statement on the matter of earnings since the period of price deflation began can be made, however, as the inquiry did not cover the period of falling prices in 1920.

CONCLUSION.—The foregoing data regarding the combed-yarn manufacturer's profits in relation to the capital required to conduct the business and to the stockholder's investment in the business indicates that while 1914 earnings were low, 1915 brought marked improvement in the earnings of some companies and less in those of others, but on the average yielded a much better return than in 1914. In 1916 and succeeding years the earnings became unusually high. They reached the highest point in 1917, fell off considerably in 1918, and advanced again in 1919, though they did not reach the very high level attained in 1917.

For the companies included in this study the profits of 1916 and succeeding years were large enough to equal the total capital, including borrowed money required to conduct the business, in from 2.6 to 3.9 years. Stated in another way, profits of 1916 and subsequent years, after the deduction of interest on borrowed money, were large enough to equal the stockholder's equity, consisting of capital stock and undivided surplus in from 2.1 to 3 years.

EXHIBITS.

EXHIBIT 1.

COTTON PRODUCTION AND DISTRIBUTION OF THE UNITED STATES, 1910 TO 1920, INCLUSIVE.

The following table and chart, based on statistics published by the Bureau of the Census (Bull. 145, p. 9) shows the total supply and distribution of cotton for the United States by years from 1910 to 1920, inclusive. The total supply for each year consists of the total ginnings for the year, the quantity carried over from the preceding year, and the total net imports of cotton. The quantity distributed each year consists of the quantities exported, consumed, and carried over to the succeeding year.

TABLE 19.—*Total supply and distribution of cotton and linters in the United States, 1910–1920.*

[Statistics for 1915–1919 relate to 12 months ending July 31, and those for prior years to the 12 months ending August 31. Quantities are given in running bales except that round bales are counted as half bales and foreign cotton in equivalent 500-pound bales.]

(Compiled from Bureau of the Census Bulletin No. 145, p. 9.)

SUPPLY.

Year.	Aggregate amount for the year.	Ginning and to balance distribution.[1]		On hand at beginning of year.		Net imports.	
	Bales.	Bales.	Per cent of total.	Bales.	Per cent of total.	Bales.	Per cent of total.
1910	12,188,021	10,553,041	86.59	1,483,585	12.17	151,395	1.24
1911	13,873,423	12,602,192	90.83	1,040,040	7.50	231,191	1.67
1912	17,896,226	16,291,927	91.04	1,375,031	7.68	229,268	1.28
1913	16,275,734	14,273,389	87.70	1,776,885	10.92	225,460	1.38
1914	16,492,408	14,578,324	88.39	1,648,438	10.00	265,646	1.61
1915	18,913,660	17,002,617	89.90	1,547,448	8.18	363,595	1.92
1916	16,972,895	12,227,010	72.04	4,324,890	25.48	420,995	2.48
1917	16,606,048	12,914,306	77.77	3,403,256	20.49	288,486	1.74
1918	16,076,558	12,685,345	78.91	3,173,832	19.74	217,381	1.35
1919	17,098,439	13,011,133	76.10	3,890,105	22.75	197,201	1.15
1920	18,018,366	12,179,773	67.60	5,155,682	28.61	682,911	3.79

DISTRIBUTION.

Year.	Aggregate amount for the year.	Exports.		Consumed, including destroyed by fire.[2]		On hand at end of year.	
	Bales.	Bales.	Per cent of total.	Bales.	Per cent of total	Bales.	Per cent of total.
1910	12,188,021	6,339,028	52.01	4,508,353	59.46	1,040,040	8.53
1911	13,873,423	7,781,414	56.09	4,716,978	34.00	1,375,031	9.91
1912	17,896,226	10,681,758	59.69	5,137,583	30.38	1,776,885	9.93
1913	16,275,734	8,800,966	54.07	5,826,330	35.80	1,648,438	10.13
1914	16,492,408	8,914,839	54.05	5,929,733	35.96	1,647,836	9.99
1915	18,913,660	8,544,563	45.17	6,044,207	31.96	4,324,890	22.87
1916	16,972,895	6,191,110	36.48	7,378,529	43.47	3,403,256	20.05
1917	16,606,048	5,739,009	34.56	7,693,207	46.33	3,173,832	19.11
1918	16,076,558	4,476,124	27.84	7,710,329	47.96	3,890,105	24.20
1919	17,098,439	5,663,920	33.13	6,278,837	36.72	5,155,682	30.15
1920	18,018,366	6,598,347	34.19	6,847,207	38.00	4,572,812	25.38

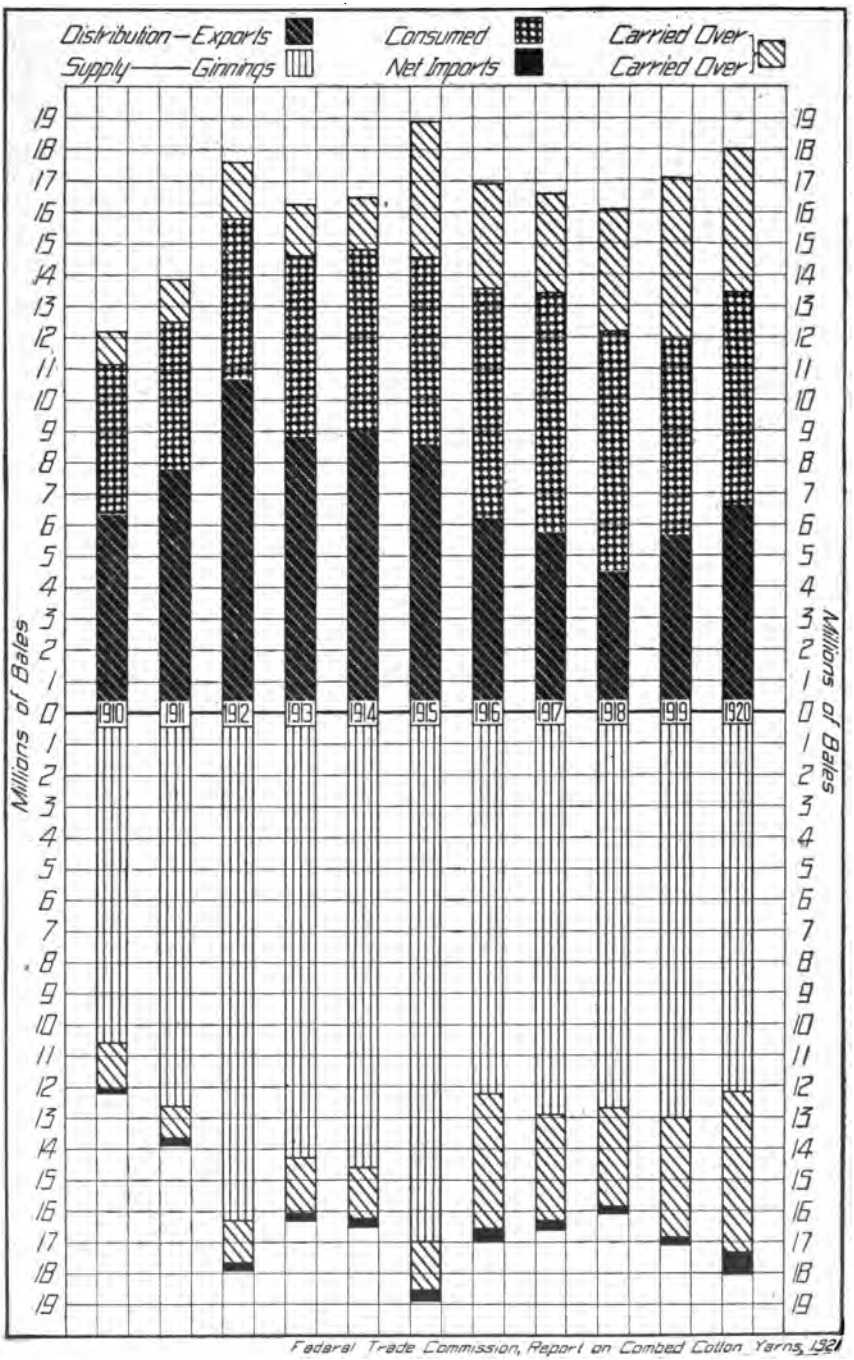
[1] An amount varying from 114,311 to 340,681 bales is added to the ginnings for the year to balance the distribution total. This difference arises out of errors in reporting production, to "city crop," and to errors in consumption and stocks, but in no case amounts to more than 2 per cent of the total reported.

[2] The amount destroyed by fire included in the figures for consumption varies during the period shown from 10,000 bales to 100,000 bales annually, but in no year amounts to more than one or two per cent of the total consumed shown in the table.

CHART IX

SUPPLY AND DISTRIBUTION OF COTTON AND LINTERS IN THE UNITED STATES FOR THE YEARS 1910 TO 1920 INC.

Above Base Line—DISTRIBUTION Below Base Line—SUPPLY



Federal Trade Commission, Report on Combed Cotton Yarns, 1921

The striking feature brought out by the table and chart is that the high prices of cotton during the war, discussed in the body of the report, occurred at a time when the annual carryover of cotton and linters of the country was from two to three times that carried over in the years preceding the war. This peculiar fact is explained by the reduction of exports occurring during the war. Germany, Austria, Russia, and the smaller central European countries normally are the largest purchasers of American cotton of low grades and short staples. During the war England, France, Italy, and Belgium all took less than their normal amount of American cotton; Germany was entirely cut off from 1916 to the end of the war; Austria was almost entirely cut off from 1915 to 1918, inclusive; and exports to Russia decreased to nothing in 1920. Japan, Canada, and all other countries took more than their usual amount, but there was nevertheless a striking reduction in total exports, which resulted in an unusual accumulation of American cotton carried over from year to year.[1] Owing to the reduction in trade with Russia and central Europe the greater part of the excess carried over was of low grades and short staples that normally are not spun in the United States. Consequently the quantity of cotton carried over from year to year added but little to the supply of staples demanded by American spinners; hence the high prices paid by American spinners in the face of what appears at first glance to be an excessive supply. Since the termination of hostilities, industrial prostration of Europe and the adverse exchange situation have continued to prevent the normal resumption of exports up to the beginning of 1921.

During the war the United States Government required closer cutting of linters from the seed, thereby increasing the quantity of linters available for use in the manufacture of munitions. Following the armistice there was an unusual accumulation of linters in addition to the excess of low-grade lint cotton. In the spring of 1920 the Senate passed a resolution (S. Res. 340, 66th Cong., 2d sess.) calling upon the Director of the Census to report to the Senate the number of bales of unspinnable cotton, including gin-cut, water-packed, and perished-fiber cotton and linters in public storage and at concentration points. In response to this request the Director of the Census reported on May 1, 1920, that there were 1,039,513 bales of linters and other unspinnable cotton in public storage and consuming establishments in the United States. This quantity subtracted from the total carryover for July 31, 1920, amounting to 4,572,812 bales, would indicate a residual of probably 3,500,000 bales of spinnable cotton, mainly of low grades or short staple carried over as the result of war time curtailment of exports.

This carryover, amounting to twice the largest carryover of the prewar years shown in the table, added to the crop of 1920 produced an excess of supply in the face of decreasing home consumption and weakened export demand that became the dominant factor in the price reductions of the autumn of 1920.

Combed yarns require the use of the longest staples of cotton obtainable. The supply of such staples in recent years has been so limited in relation to the demand as to maintain long staples ($1\frac{1}{8}$-inch and over) at prices considerably higher than short staples ($1\frac{1}{16}$-inch

[1] See Census Bulletin No. 145, "Cotton Production and Distribution, 1919-20," p. 68.

and under). Consequently, since there is less possibility of substituting low grades and short staples in combed-yarn manufacture, the large carryover shown had less bearing on long-staple than on short-staple prices from 1914 to 1919, inclusive.

Considering the entire period covered by the table and chart, there was a marked increase in the total supply of cotton during the years 1910 to 1915, in response to the marked increase in demand for cotton and cotton products of the past ten years. Short crops in the years ending July 31, 1916, 1917, 1918, and 1919, reduced the total supply, including the unusually large carryover, to a quantity from two to two and a half millions of bales less than that of the maximum crop year, 1915, and limited the total supply to approximately the average for the crop years ending 1912, 1913, and 1914.

From 1910 to 1915 there was an increase in the total acreage grown each year, as shown by the Bureau of the Census. By years the total harvested amounted to 32,403,000 acres in 1910, 36,045,000 acres in 1911, 34,283,000 acres in 1912, 37,089,000 acres in 1913, and 36,832,000 acres in 1914. In the growth year, 1915, which immediately followed the disturbance of the export market and low prices of the fall of 1914, the acreage harvested fell to 31,412,000 acres, but was somewhat larger in succeeding years, amounting to 34,985,000 acres in 1916, 33,841,000 acres in 1917, 36,008,000 acres in 1918, and 33,960,000 acres in 1919. The decreased supplies of 1916 and subsequent years are thus seen to be due to two causes—decrease in acreage planted in the growth years of 1915, 1916, 1917, and 1919, and to generally adverse crop conditions in all growth years 1915 to 1919, inclusive.

The smallest feature in the total supply for all years is the part represented by total imports. Imports increased in 1913 and subsequent years, but at no time represented more than 2.5 per cent of the total supply for any year.

On the distribution side there was a marked increase in exports from 1910 to and including 1914. Domestic consumption, including a small quantity destroyed by fire each year, remained almost constant during the years 1910 to and including 1912. During these years the number of bales consumed varied in round numbers from 4,809,000 to 5,137,000 bales. Domestic consumption increased to 5,826,000 bales in 1913, and 5,930,000 bales in 1914. Under the stress of increasing demands directly or indirectly traceable to the war, consumption rose to 6,044,000 bales in 1915, 7,379,000 in 1916; 7,693,000 in 1917, and 7,710,000 in 1918. In 1919, although there was no decrease in the activity of the industry, there was a shifting of production from coarse yarns for war purposes to finer yarns for domestic consumption and export. Fine yarn production requires less cotton but cotton of higher grades, hence the domestic consumption of 1919 fell to 6,279,000 bales, a decrease of approximately 1,000,000 bales as compared with the previous three war years.

Notwithstanding the increase in domestic consumption the most striking effect of the war is seen in the increased quantity of cotton and linters carried over from year to year. From 1910 to 1915 the quantity carried over in any year did not exceed 1,777,000 bales, the amount carried over in 1912 from the large crop of 1911. The quantity carried over during the war years increased from 1,648,438

bales in 1914 to 1,647,448 bales in 1915, 4,324,890 bales in 1916, 3,403,256 bales in 1917, 3,173,832 bales in 1918, 3,890,105 bales in 1919, and 5,155,682 bales in 1920. As previously explained, this unusual carryover consists largely of low grades and short staple not normally consumed in the United States. Reduction in the quantity carried over may be accomplished either by such reduction in cotton acreage as will force American spinners to consume lower grades, or by increased exports. Both of these methods were proposed by cotton growers' organizations which advocated reduction of acreage for 1921 and are at the same time interested in the formation of corporations or associations for the exportation of raw cotton.

EXHIBIT 2.

MARKET PRICES OF RAW COTTON, BY MONTHS, FROM AUGUST, 1913, TO DECEMBER, 1920, INCLUSIVE.

Table 20 shows the average spot prices of short and long staple cotton on certain markets for each month from August 1913, to December, 1920. All prices shown are monthly averages of weekly quotations. These are the actual prices in cents per pound upon which the relative market prices discussed in Chapter III are based. Table 21 shows the relative prices or index numbers based on the prices shown in Table 20. A graphical comparison of the index numbers shown in Table 21 will be found in Chart I of the text.

The sources of the prices shown are: War Industries Board, Price Bulletin No. 23, Prices of Cotton and Cotton Products; Reports of the United States Department of Agriculture, Bureau of Markets; Daily New York Cotton Exchange Market Reports, and New Bedford Cotton Market Reports published in the New Bedford Standard.

TABLE 20.—*Prices of upland short-staple, upland long-staple, sea-island, and imported Egyptian cotton, August, 1913, to December, 1920, inclusive.*

[Upland short-staple, New York spot market. Upland long-staple and imported Egyptian, delivered New Bedford, Sea-island, Savannah, Ga., spot market.]

Year and month.	Upland middling short-staple, New York spot delivered.	Delivered New Bedford.				Sea-island extra choice, Savannah, Ga.	Imported Egyptian Sakellaridis, medium landed United States.
		Upland long-staple.		Strict middling.			
		1⅛-inch.	1 3/16-inch.	1⅛-inch.	1 3/16-inch.		
1913.	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*
August	12.2	15.0	16.6	18.8	19.9	19.0	22.33
September	13.5	16.9	17.5	18.8	21.5	19.0	22.33
October	14.1	16.8	17.9	19.3	22.0	19.0	22.84
November	13.7	16.4	17.4	18.6	21.8	19.0	24.74
December	13.0	15.9	17.0	18.3	21.0	20.5	24.23
1914.							
January	12.7	16.0	17.0	18.3	20.8	20.4	22.83
February	12.8	15.9	17.0	18.8	20.9	21.5	22.43
March	13.3	16.0	17.3	18.8	21.3	22.0	22.07
April	13.3	16.3	17.6	18.8	21.3	22.0	22.06
May	13.4	16.3	17.6	18.8	21.6	22.0	22.70
June	13.4	16.3	17.7	18.8	21.6	22.0	23.08
July	13.3	16.3	17.8	18.8	21.3	22.0	23.45
August	11.0	16.3	17.8	18.8	20.2	22.0	25.95
September	N.	12.0	13.8	16.0	16.5	20.3	20.50
October	N.	7.1	11.3	14.5	15.2	17.2	18.02
November	7.7	9.9	12.0	14.1	15.5	15.0	20.10
December	7.5	10.0	12.0	14.5	15.5	16.5	19.60

TABLE 20.—*Prices of upland short-staple, upland long-staple, sea-island, and imported Egyptian cotton, August, 1913, to December, 1920, inclusive*—Continued.

Year and month.	Upland middling short-staple, New York spot delivered.	Delivered New Bedford.				Sea-island extra choice, Savannah, Ga.	Imported Egyptian Sakellaridis, medium landed United States.
		Upland long-staple.		Strict middling.			
		1⅛-inch.	1 3/16-inch.	1⅛-inch.	1 3/16-inch.		
1915.	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*
January	18.3	10.8	13.1	15.3	16.7	17.6	16.37
February	18.6	11.3	14.0	16.1	17.5	21.2	17.00
March	18.9	11.4	13.9	16.1	17.5	21.0	18.20
April	10.3	12.6	13.9	16.3	19.0	21.7	18.75
May	9.8	12.8	14.3	17.0	18.6	23.4	20.31
June	9.7	12.8	14.3	17.0	18.5	23.5	20.23
July	9.2	12.8	14.3	17.0	18.1	23.5	20.70
August	9.4	12.8	14.4	17.3	18.1	23.4	20.50
September	11.0	12.9	15.0	17.4	19.7	20.1	22.00
October	12.5	16.2	17.8	20.0	21.3	24.5	24.12
November	11.9	16.3	17.6	20.4	20.8	24.5	22.99
December	12.4	16.6	17.8	20.5	21.2	25.7	24.01
1916.							
January	12.4	16.7	17.8	20.5	21.4	28.0	28.75
February	11.8	16.6	17.8	20.5	20.9	28.8	28.57
March	11.8	16.3	17.8	20.5	21.1	29.7	31.10
April	12.0	16.4	17.8	21.1	21.2	30.0	30.18
May	12.9	16.9	18.7	21.5	22.5	29.8	26.48
June	13.0	17.5	19.2	22.0	22.6	29.7	27.72
July	13.0	18.3	19.5	23.5	23.5	29.4	27.22
August	14.8	19.0	21.4	25.0	25.5	29.0	27.72
September	15.8	19.8	23.3	26.3	27.7	31.0	29.72
October	17.9	22.0	25.2	28.1	32.5	38.4	33.72
November	19.9	25.7	28.6	30.8	36.0	48.4	43.00
December	18.1	25.9	29.1	32.1	32.7	52.1	47.54
1917.							
January	17.6	24.9	27.4	31.8	32.0	52.0	53.00
February	15.6	24.1	26.3	30.3	31.0	51.0	53.75
March	18.2	26.1	29.6	31.3	35.0	55.7	54.50
April	20.5	28.3	32.9	34.7	38.0	66.3	55.50
May	20.8	29.1	33.5	36.0	38.5	68.8	56.50
June	25.3	31.3	41.0	39.0	38.5	69.0	57.50
July	26.2	32.5	42.5	41.3	42.0	69.0	58.50
August	25.3	32.5	37.5	41.9	45.0	69.0	59.50
September	23.3	29.3	32.5	38.3	47.0	65.1	60.50
October	28.0	35.0	41.5	42.8	49.3	69.8	61.50
November	29.7	38.4	41.6	44.6	48.6	73.2	62.50
December	30.9	38.9	41.6	44.3	48.8	73.0	63.50
1918.							
January	32.1	40.4	42.5	44.5	49.0	73.0	63.50
February	31.6	40.7	42.8	44.7	48.6	73.0	63.50
March	33.7	41.3	43.5	45.0	48.3	73.0	63.50
April	31.8	41.1	42.8	44.6	47.8	72.8	63.50
May	27.7	39.3	40.0	40.7	45.3	72.3	63.50
June	30.5	37.4	39.4	41.0	44.5	72.3	63.50
July	31.5	37.5	39.2	40.8	43.5	72.3	63.50
August	34.3	37.9	39.0	40.9	41.8	72.3	63.50
September	34.7	38.7	42.7	43.9	45.8	69.9	64.00
October	32.7	38.5	38.8	41.2	42.9	67.0	65.00
November	29.7	37.0	38.4	40.1	42.8	67.5	66.00
December	30.8	36.5	38.5	40.0	42.9	53.1	67.00
1919.							
January	29.4	36.7	38.5	40.6	43.8	51.5	[1] 55.10
February	26.2	35.0	36.6	39.1	41.7	50.0	[1] 55.25
March	27.6	34.7	36.6	38.9	41.4	47.8	[1] 58.40
April	29.0	36.4	38.2	40.5	42.7	50.0	[1] 57.13
May	30.9	39.3	41.0	43.7	46.0	50.4	[1] 56.13
June	32.8	43.8	46.1	47.9	49.9	54.8	[1] 58.80
July	35.7	[1] 49.2	[1] 51.1	[1] 52.8	[1] 55.1	58.0	[1] 60.50
August	32.6	48.6	51.6	52.4	58.1	64.4	[1] 60.20
September	30.4	47.1	50.2	53.0	55.5	67.6	[1] 54.25
October	34.2	55.9	59.5	62.0	64.6	65.3	58.69
November	39.1	67.5	75.8	81.0	86.5	76.7	[1] 75.40
December	38.9	67.5	73.9	81.5	87.3	80.8	88.38

[1] Interpolated figure.

TABLE 20.—*Prices of upland short-staple, upland long-staple, sea-island, and imported Egyptian cotton, August, 1913, to December, 1920, inclusive*—Continued.

Year and month.	Upland middling short-staple, New York spot delivered.	Delivered New Bedford.				Sea-island extra choice, Savannah, Ga.	Imported Egyptian Sakellaridis, medium landed United States.
		Upland long-staple.		Strict middling.			
		1⅛-inch.	1 1/16-inch.	1¼-inch.	1 3/16-inch.		
1920.	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*
January	39.3	72.7	83.3	87.5	90.9	80.3	89.75
February	38.7	73.1	84.1	91.2	97.7	92.9	[1] 104.10
March	41.1	80.4	90.4	97.3	102.0	100.5	116.38
April	42.3	82.5	94.4	101.0	107.1	106.9	124.88
May	40.8	85.0	95.0	104.5	112.6	115.0	126.30
June	39.4	68.2	91.2	101.7	106.3	115.0	121.67
July	41.3	66.7	93.7	100.8	[1] 105.8	115.0	[2] 120.25
August	36.0	63.4	.....	.....	.....	115.0	[2] 127.50
September	30.9	54.2	.....	.....	.....	115.0	([3])
October	23.0	31.7	39.4	37.9	41.9	115.0	([3])
November	18.4	24.1	28.0	30.3	34.8	([3])	[2] 56.25
December	15.9	18.9	21.1	22.3	.....	([3])	[2] 48.04

[1] Interpolated figure.
[2] Quotations for fully good Sakellaridis.
[3] No quotations available.

TABLE 21.—*Index numbers of raw cotton prices, August, 1913, to December, 1920, inclusive, upland short-staple, upland long-staple, sea-island, and imported Egyptian cotton.*

[Base: Average price for the cotton year 1913–14.]

Year and month.	Upland short-staple, New York.	Upland long-staple.				Sea-island extra choice, Savannah, Ga.	Imported Egyptian Sakellaridis landed United States.
		1⅛-inch.	1 1/16-inch.	1¼-inch.	1 3/16-inch.		
1913.							
August	92.4	92.6	95.4	100.5	93.4	91.9	97.4
September	102.3	104.5	100.6	.....	100.9	91.9	97.4
October	106.8	103.7	102.9	103.2	103.3	91.9	99.7
November	103.8	101.2	100.0	99.5	102.3	91.9	107.9
December	98.5	98.1	97.7	97.9	98.6	99.1	105.7
1914.							
January	96.2	98.8	97.7	97.9	97.7	98.6	99.6
February	97.0	98.1	97.7	100.5	98.1	104.0	97.9
March	100.8	98.8	99.4	100.5	100.0	106.4	96.2
April	100.8	100.6	101.1	100.5	100.0	106.4	96.2
May	101.5	100.6	101.1	100.5	101.4	106.4	99.0
June	101.5	100.6	101.7	100.5	101.4	106.4	100.7
July	100.8	100.6	102.3	100.5	100.0	106.4	102.3
August	83.3	100.6	102.3	100.5	94.8	106.4	113.2
September	N.	74.1	79.3	85.6	77.5	98.2	89.9
October	N.	43.8	64.9	77.5	71.4	83.2	78.6
November	58.3	61.1	69.0	75.4	72.8	72.5	87.7
December	56.8	61.7	69.0	77.5	72.8	79.8	85.5
1915.							
January	62.9	66.7	75.2	81.8	78.4	85.1	71.4
February	65.2	69.8	80.5	86.1	82.2	102.5	74.1
March	67.4	70.4	79.9	86.1	82.2	101.5	79.4
April	78.0	77.8	79.9	87.2	89.2	104.9	81.8
May	74.2	79.0	82.2	90.9	87.3	113.2	88.6
June	73.5	79.0	82.2	90.9	86.9	113.6	88.2
July	69.7	79.0	82.2	90.9	85.0	113.6	90.3
August	71.2	79.0	82.8	92.5	85.0	113.2	89.4
September	83.3	79.6	86.2	93.0	92.5	97.2	96.0
October	94.7	100.0	102.3	107.0	100.0	118.5	105.2
November	90.2	100.6	101.1	109.1	97.7	118.5	100.3
December	93.9	102.5	102.3	109.6	99.5	124.3	104.8

TABLE 21.—*Index numbers of raw cotton prices, August, 1913, to December, 1920, inclusive, upland short-staple, upland long-staple, sea-island, and imported Egyptian cotton*—Continued.

Year and month.	Upland short-staple, New York.	Upland long-staple.				Sea-island extra choice, Savannah, Ga.	Imported Egyptian Sakellaridis landed United States.
		1⅛-inch.	1 1/16-inch.	1¼-inch.	1 5/16-inch.		
1916.							
January	93.9	103.1	102.3	109.6	100.5	135.4	125.4
February	89.4	102.5	102.3	109.6	98.1	139.3	124.7
March	89.4	100.6	102.3	109.6	99.1	143.6	135.7
April	90.9	101.2	102.3	112.8	99.5	145.1	131.7
May	97.7	104.3	107.5	115.0	105.6	144.1	115.6
June	98.5	108.0	110.3	117.6	106.1	143.6	121.0
July	98.5	113.0	112.1	125.7	110.3	142.2	128.8
August	112.1	117.3	123.0	133.7	119.7	140.2	121.0
September	119.7	122.2	133.9	140.6	130.0	149.9	129.7
October	135.6	135.8	144.8	150.3	152.6	185.7	147.1
November	150.8	158.6	164.4	164.7	169.0	234.0	187.6
December	137.1	159.9	167.2	171.7	153.5	251.9	207.4
1917.							
January	133.3	153.7	157.5	170.1	150.2	251.5	231.2
February	118.2	148.8	151.1	162.0	145.5	246.6	234.5
March	137.9	161.1	170.1	167.4	164.3	269.3	237.8
April	155.3	174.7	189.1	185.6	178.4	320.6	242.1
May	157.6	179.6	192.5	192.5	180.8	332.7	246.5
June	191.7	193.2	235.6	208.6	180.8	333.7	250.9
July	198.5	200.6	244.3	220.9	197.2	333.7	255.2
August	191.7	200.6	215.5	224.1	211.3	333.7	259.6
September	176.5	180.9	186.8	204.8	220.7	314.8	264.0
October	212.1	216.0	238.5	228.9	231.5	337.5	268.3
November	226.0	237.0	239.1	238.5	228.2	354.0	272.7
December	234.1	240.1	.....	236.9	229.1	353.0	277.0
1918.							
January	243.2	249.4	244.3	238.0	230.0	353.0	277.0
February	239.4	251.2	246.0	239.0	228.2	353.0	277.0
March	255.3	254.9	250.0	240.6	226.8	353.0	277.0
April	240.9	253.7	246.0	238.5	224.4	352.0	277.0
May	209.8	242.6	229.9	217.6	212.7	349.6	277.0
June	231.1	230.9	226.4	219.3	208.9	349.6	277.0
July	238.6	231.5	225.3	218.2	204.2	349.6	277.0
August	259.8	234.0	224.1	218.7	196.2	349.6	277.0
September	262.9	238.9	245.4	234.8	215.0	338.0	279.2
October	247.7	237.7	223.0	220.3	201.4	324.0	283.6
November	225.0	228.4	220.7	214.4	200.9	326.4	288.0
December	233.3	225.3	221.3	213.9	201.4	251.5	292.3
1919.							
January	222.7	226.5	221.3	217.1	205.6	249.0	240.4
February	198.5	216.0	210.3	209.1	195.8	241.8	241.1
March	209.1	214.2	210.3	208.0	194.4	231.1	254.8
April	219.7	224.7	219.5	216.6	200.5	241.8	249.3
May	234.1	242.6	235.6	233.7	216.0	243.7	244.9
June	248.5	270.4	264.9	256.1	234.3	265.0	256.5
July	270.5	308.7	293.7	282.4	258.7	280.5	264.0
August	247.0	300.0	296.6	280.2	272.8	311.4	262.7
September	230.3	290.7	288.5	283.4	260.6	326.9	236.7
October	259.1	345.1	342.0	331.6	303.3	315.8	256.1
November	296.2	416.7	435.6	433.2	406.1	370.9	329.0
December	294.7	416.7	424.7	435.8	409.9	390.7	385.6
1920.							
January	297.7	448.8	478.7	467.9	426.8	388.3	391.6
February	293.2	451.2	483.3	487.7	458.7	449.2	454.2
March	311.4	496.3	519.5	520.3	478.9	486.0	507.8
April	320.5	509.3	542.5	540.1	502.8	512.1	544.9
May	309.1	524.7	546.0	558.8	528.6	556.1	551.1
June	298.5	421.0	524.1	543.8	499.1	556.1	530.9
July	312.9	411.7	538.5	539.0	496.7	556.1	524.7
August	272.7	391.4	.....	.....	.....	556.1	556.3
September	234.1	334.6	.....	.....	.....	556.1	.....
October	174.2	195.7	226.4	202.7	196.7	.....	.....
November	139.4	148.8	160.9	162.0	163.4	.....	245.4
December	120.5	116.7	121.3	119.3	.....	.....	209.6

EXHIBIT 3.

MARKET PRICES OF COMBED PEELER COTTON YARNS, BY MONTHS, FROM AUGUST, 1913, TO DECEMBER, 1920.

In Table 22 are shown the market prices for certain types of combed peeler yarns by months from August, 1913, to December, 1920. All prices shown are based on a single quotation for each month, usually that of the first week of the month. The prices are those published from week to week in the market reports found in "Fiber and Fabric" for August, 1913, to June, 1916, and the "Textile World Journal" from July, 1916, to December, 1920. From the mass of quotations published weekly, certain types and counts only for which data throughout the period could be obtained are shown.

Table 23 presents relative prices or index numbers based on the prices shown in Table 22. These are the relative prices discussed in Chapter III of the report in comparison with the relative prices of cotton staples. The relative prices for each count of yarn are based on the average of quoted prices for the count and type of yarn put up in the manner shown for the cotton year August, 1913, to July, 1914, inclusive.

TABLE 22.—*Market prices of combed peeler cotton yarns, by months, from August, 1913, to December, 1920, inclusive.*

Year and month.	Single-combed peeler cones.			Two-ply combed peeler skeins.							Southern two-ply warps, skeins, and cones.						
	14s.	20s.	30s.	12/2s.	14/2s.	20/2s.	30/2s.	40/2s.	50/2s.	60/2s.	30/2s.	36/2s.	40/2s.	50/2s.	60/2s.	70/2s.	80/2s.
1913.	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*
August	25.8	27.3	32.3	20.3	20.8	22.3	25.0	30.0	40.0	48.0	35.0	36.0	37.5	42.5	50.5	60.0	70.0
September	25.8	27.3	32.3	20.5	21.0	22.5	25.8	30.0	40.0	48.0	35.0	36.0	38.0	42.5	51.0	61.0	70.0
October	29.0	30.5	35.0	22.5	22.5	24.8	27.5	34.0	41.0	49.0	38.0	39.0	40.5	47.0	53.5	62.5	73.0
November	29.0	30.5	35.0	23.0	23.0	25.8	28.5	35.0	41.0	49.0	38.0	40.0	41.0	47.0	53.5	62.5	73.0
December	28.0	29.5	34.0	22.3	22.5	24.5	27.5	33.5	40.0	48.5	38.0	40.0	41.0	47.0	53.0	62.5	72.0
1914.																	
January	27.5	29.0	32.5	22.0	21.5	23.5	26.5	32.0	38.0	48.0	36.0	38.0	40.0	46.0	52.0	62.0	72.0
February	27.5	29.0	32.5	21.5	21.8	23.3	26.3	31.8	37.8	46.5	35.0	36.0	38.0	43.5	48.5	60.0	70.0
March	27.5	29.0	33.5	21.5	22.0	23.5	26.5	31.8	37.8	46.5	35.5	37.0	39.0	44.5	51.0	61.0	70.0
April	27.5	29.0	33.5	21.0	21.5	23.3	26.5	31.0	37.8	46.5	35.5	37.0	39.0	44.5	51.0	61.0	70.0
May	27.0	28.5	32.0	21.0	21.5	22.5	25.3	30.0	37.8	46.5	34.5	37.0	39.0	44.5	51.0	61.0	70.0
June	26.3	27.8	31.3	20.0	21.0	22.3	25.0	29.0	35.8	44.5	34.5	37.0	39.0	44.5	51.0	61.0	70.0
July	26.3	27.8	31.3	20.0	21.0	22.3	25.0	29.0	35.8	44.5	34.5	37.0	39.0	44.5	51.0	61.0	70.0
August	26.3	27.8	31.3	20.0	21.0	22.3	25.0	29.0	35.8	44.5	34.5	37.0	39.0	44.5	49.5	61.0	70.0
September	24.3	25.8	29.3	16.8	17.3	18.3	21.8	26.5	32.0	40.0	33.5	36.0	38.0	43.0	47.5	57.0	66.0
October	23.3	24.8	28.3	16.8	17.3	18.3	21.8	26.5	32.0	40.0	33.5	36.0	38.0	43.0	47.5	57.0	66.0
November	21.5	23.3	26.8	14.5	14.5	15.3	18.3	23.8	29.0	35.5	30.0	31.0	33.0	38.5	46.5	57.0	66.5
December	21.5	23.3	26.8	14.5	14.5	16.0	18.3	23.8	29.0	35.5	30.0	31.0	33.0	38.5	45.5	57.0	64.5
1915.																	
January	21.0	22.5	26.0	13.5	14.0	15.0	17.5	22.8	29.0	35.5	30.0	31.0	32.0	38.0	44.0	53.5	59.5
February	21.0	22.5	26.0	14.0	14.5	16.3	18.5	23.8	30.3	35.5	28.0	29.0	30.0	37.0	40.0	53.5	60.5
March	21.0	22.5	26.0	14.0	14.5	16.0	18.5	23.8	30.3	35.5	28.5	30.0	32.5	37.5	42.5	51.5	62.0
April	21.5	23.0	26.5	14.5	15.0	16.0	18.5	26.0	31.0	37.0	29.0	30.5	33.5	38.5	45.0	52.5	63.5
May	21.5	23.0	26.5	16.0	16.5	18.0	20.0	27.0	32.0	38.0	29.0	30.5	34.0	39.5	45.0	54.5	64.5
June	21.5	23.0	26.5	16.0	16.5	18.0	20.0	27.0	32.0	38.0	29.0	30.5	35.0	41.0	46.5	54.5	64.5
July	22.0	23.5	28.8	14.8	15.0	16.8	18.8	25.5	34.0	40.0	29.0	30.5	34.8	40.3	46.5	53.5	63.0
August	22.0	23.5	28.8	14.8	15.0	16.8	18.8	25.5	34.0	40.0	29.0	30.5	34.8	40.3	46.5	53.5	63.0
September	22.0	23.5	28.8	14.8	15.0	16.8	18.8	25.5	34.0	40.0	29.0	30.5	34.8	40.3	46.5	53.5	63.0
October	24.5	26.0	32.0	19.0	20.0	21.8	24.5	30.5	36.5	42.5	34.5	37.5	39.0	45.8	51.0	57.0	64.5
November	26.5	28.0	34.0	20.0	21.3	22.5	26.5	35.0	39.0	45.0	38.5	41.5	42.5	49.0	55.5	61.5	69.0
December	26.5	28.0	34.0	20.0	21.3	22.5	26.5	35.0	39.0	45.0	38.5	41.5	42.5	49.0	56.5	63.0	70.0

TABLE 22.—*Market prices of combed peeler cotton yarns, by months, from August, 1913, to December, 1920, inclusive*—Continued.

Year and month.	Single-combed peeler cones.			Two-ply combed peeler skeins.							Southern two-ply warps, skeins, and cones.						
	14s.	20s.	30s.	12/2s.	14/2s.	20/2s.	30/2s.	40/2s.	50/2s.	60/2s.	30/2s.	36/2s.	40/2s.	50/2s.	60/2s.	70/2s.	80/2s.
1916.	*Cents*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*
January	27.3	28.8	34.8	20.3	21.3	23.0	27.8	36.0	44.5	52.5	38.5	41.5	42.5	50.0	57.5	63.5	71.0
February	27.3	28.8	34.8	21.8	22.8	23.8	29.3	38.0	45.5	54.5	42.0	44.0	44.5	53.0	61.0	68.0	73.5
March	29.5	32.5	38.5	21.8	22.8	23.8	29.8	39.0	47.0	54.5	42.0	44.0	45.0	55.5	65.0	71.0	81.0
April	28.5	30.8	35.5	21.8	22.8	24.3	30.3	39.0	49.0	58.0	42.5	46.5	49.0	57.5	65.5	73.0	85.0
May	28.5	30.8	35.5	22.8	23.3	25.5	31.8	41.5	54.5	64.0	44.5	49.0	53.0	64.0	71.0	84.5	92.5
June	28.5	30.8	35.5	22.8	23.3	25.5	31.8	41.5	54.5	64.0	44.5	49.0	53.0	64.0	71.0	84.5	92.5
July	33.5	36.5	42.5	35.5	36.5	39.5	45.5	56.5	67.0	77.5	49.5	54.5	56.5	58.0	78.0	89.0	102.5
August	33.5	36.5	42.5	37.0	38.0	41.0	49.0	62.5	72.5	82.5	51.0	56.5	59.0	69.0	81.0	92.5	103.8
September	36.5	38.5	43.5	37.0	38.0	44.0	54.0	65.5	77.5	85.5	53.5	59.0	64.5	74.0	85.0	95.0	107.5
October	41.0	43.0	49.0	37.0	38.0	44.0	54.0	69.0	87.5	97.5	56.0	64.0	67.0	78.5	89.0	103.0	119.0
November	46.5	48.5	55.0	45.0	47.0	53.0	61.0	77.5	92.5	102.5	58.5	64.0	69.0	82.0	92.5	103.0	117.5
December	50.0	53.0	59.0	53.0	55.0	62.5	72.5	87.5	97.5	107.5	67.5	76.5	80.0	90.0	106.5	115.0	130.0
1917.																	
January	52.0	54.0	62.0	53.0	55.0	62.5	72.5	87.5	97.5	107.5	69.0	79.0	79.0	91.5	102.5	117.5	127.5
February	50.0	52.0	57.0	53.0	55.0	61.0	71.0	77.5	87.5	97.5	65.5	74.0	.....	85.5	97.5	107.5	122.5
March	48.0	50.0	55.0	48.0	50.0	56.0	67.5	72.5	82.5	97.5	61.0	67.5	69.0	79.0	89.0	102.5	112.5
April	48.0	50.0	55.0	48.0	50.0	56.0	67.5	72.5	82.5	97.5	59.0	65.0	66.5	76.5	87.5	97.5	112.5
May	51.5	53.5	58.5	48.0	50.0	56.0	67.5	77.5	87.5	105.0	61.0	67.0	71.5	83.0	93.0	102.5	117.5
June	51.5	53.5	58.5	48.0	50.0	56.0	67.5	77.5	87.5	105.0	67.0	72.5	75.5	83.0	94.0	106.5	122.5
July	59.5	61.5	67.0	61.5	62.5	65.5	71.0	82.5	92.5	112.5	74.0	79.0	82.5	92.5	102.5	117.5	132.5
August	61.0	63.0	75.0	61.5	62.5	65.5	71.0	82.5	101.5	112.5	74.0	84.0	86.5	94.5	107.5	122.5	137.5
September [1]	61.0	63.0	75.0	61.5	62.5	65.5	71.0	82.5	101.5	112.5	74.0	84.0	84.0	93.5	102.5	122.5	137.5
October [1]	58.0	61.0	73.0	61.5	62.5	65.5	71.0	82.5	95.0	110.0	72.5	75.0	77.5	88.5	103.5	111.0	127.5
November [1]	60.0	63.0	75.0	61.5	62.5	65.5	71.0	82.5	95.0	110.0	76.5	83.5	89.0	99.0	112.5	127.5	137.5
December [1]	62.0	65.0	75.0	63.0	64.0	67.0	76.0	87.5	97.5	115.0	76.5	83.5	88.0	100.0	112.5	127.5	142.5
1918.																	
January	65.5	69.0	77.0	67.0	68.0	71.0	81.0	92.5	105.0	120.0	77.5	83.5	89.0	100.0	113.5	128.5	147.5
February	67.5	69.5	77.0	67.0	68.0	71.0	81.0	92.5	105.0	120.0	77.5	83.5	88.0	100.0	112.5	128.5	142.5
March	67.5	69.5	77.0	67.0	68.0	71.0	81.0	92.5	105.0	120.0	77.5	85.0	88.5	100.0	114.0	127.5	142.5
April	70.0	72.0	79.0	67.0	68.0	71.0	81.0	97.5	110.0	120.0	81.0	89.0	93.0	107.5	.....	129.0	142.5
May	75.5	77.5	87.0	73.0	75.0	81.0	91.0	102.5	112.5	122.5	83.0	90.5	94.0	108.5	119.0	132.5	147.5
June	75.5	77.5	87.0	73.0	75.0	81.0	91.0	102.5	112.5	122.5	83.0	90.5	94.0	108.5	119.0	132.5	147.5
July	76.5	79.0	89.0	73.0	75.0	81.0	91.0	102.5	112.5	122.5	86.5	93.0	96.5	111.0	122.5	137.5	152.5
August	76.5	79.0	89.0	73.0	75.0	81.0	91.0	102.5	112.5	122.5	86.5	93.0	96.5	111.0	122.5	137.5	152.5
September	83.0	87.5	96.5	87.5	89.0	95.0	106.5	119.0	131.5	149.0	106.5	114.0	119.0	131.5	149.0	176.5	194.0
October	83.0	87.5	96.5	87.5	89.0	95.0	106.5	119.0	131.5	149.0	106.5	114.0	119.0	131.5	149.0	176.5	194.0
November	83.0	87.5	96.5	87.5	89.0	95.0	106.5	119.0	131.5	149.0	106.5	114.0	119.0	131.5	149.0	176.5	194.0
December	83.0	87.5	96.5	87.5	89.0	95.0	106.5	119.0	131.5	149.0	106.5	114.0	119.0	131.5	149.0	176.5	194.0

1919.																	
January	73.0	77.0	85.0	75.5	76.5	79.0	91.0	102.5	112.5	122.5	87.5	92.5	98.5	112.5	122.5	142.5	157.5
February	64.0	68.0	77.0	67.5	68.5	71.0	83.0	97.5	107.5	117.5	85.0	86.0	89.0	96.5	102.5	127.5	142.5
March	60.0	63.0	69.0	58.0	59.0	62.5	72.5	90.0	95.0	136.0	77.5	78.5	79.0	89.0	92.5	120.0	132.5
April	61.0	65.0	71.0	58.0	59.0	62.5	72.5	82.5	92.5	102.5	73.0	74.0	77.5	84.5	95.0	107.5	122.5
May	63.0	66.0	75.0	63.0	65.0	71.0	81.0	91.0	107.5	117.5	73.0	76.0	79.0	89.0	97.5	112.5	130.0
June	67.0	73.0	83.0	77.0	78.0	81.0	91.0	107.5	117.5	132.5	87.5	98.0	107.5	117.5	132.5	152.5	180.0
July	81.0	84.0	95.0	77.0	78.0	81.0	97.5	120.0	132.5	152.5	112.5	122.5	127.5	147.5	162.5	187.5	220.0
August	85.0	88.0	98.0	81.0	83.0	89.0	107.5	127.5	145.0	165.0	120.0	130.0	140.0	165.0	187.5	217.5	242.5
September	87.0	91.0	107.5	98.0	100.5	107.5	127.5	147.5	167.5	187.5	125.0	140.0	150.0	172.5	192.5	222.5	252.5
October	87.0	91.0	107.5	98.0	100.5	107.5	127.5	147.5	167.5	187.5	127.5	140.0	150.0	177.5	202.5	230.0	252.5
November	96.5	102.5	125.5	112.5	117.5	132.5	167.5	202.5	240.0	265.0	175.0	205.0	220.0	257.5	305.0	350.0	450.0
December	110.0	117.5	137.5	122.5	127.5	142.5	175.0	215.0	255.0	295.0	180.0	207.5	232.5	267.5	320.0	372.5	462.5
1920.																	
January	115.0	125.0	150.0	130.0	135.0	150.0	190.0	250.0	290.0	325.0	195.0	237.5	245.0	295.0	345.0	392.5	462.5
February	115.0	125.0	150.0	130.0	135.0	150.0	190.0	250.0	290.0	325.0	217.5	245.0	270.0	337.5	382.5	412.5	487.5
March	115.0	125.0	150.0	130.0	135.0	150.0	190.0	250.0	290.0	325.0	217.5	250.0	270.0	337.5	382.5	412.5	487.5
April	120.0	135.0	160.0	155.0	160.0	175.0	220.0	260.0	335.0	365.0	205.0	240.0	257.5	330.0	370.0	412.5	487.5
May	120.0	135.0	160.0	155.0	160.0	175.0	220.0	260.0	335.0	365.0	205.0	240.0	255.0	327.5	357.5	412.5	487.5
June	120.0	135.0	160.0	135.0	140.0	155.0	180.0	225.0	275.0	300.0	187.0	210.0	220.0	287.5	317.5	387.5	437.5
July	110.0	120.0	140.0	135.0	140.0	155.0	180.0	200.0	225.0	250.0	165.0	185.0	195.0	212.5	242.5	307.5	350.0
August	109.0	115.0	130.0	124.0	128.0	140.0	160.0	180.0	210.0	225.0	N.	N.	N.	N.	N.	N.	N.
September	94.0	100.0	115.0	117.0	119.0	125.0	135.0	150.0	175.0	210.0	N.	N.	N.	N.	N.	N.	N.
October	89.0	95.0	110.0	92.0	94.0	100.0	110.0	120.0	135.0	150.0	N.	N.	N.	N.	N.	N.	N.
November	62.0	65.0	74.0	63.0	64.0	70.0	80.0	90.0	100.0	110.0	N.	N.	N.	N.	N.	N.	N.
December	58.0	62.0	70.0	54.0	55.0	58.0	65.0	75.0	85.0	95.0	N.	N.	N.	N.	N.	N.	N.

[1] Prices fixed by War Industries Board

TABLE 23.—*Index numbers of market prices of combed peeler cotton yarns, by months, from August, 1913, to December, 1920, inclusive.*

Year and month.	Single-combed peeler cones.			Two-ply combed peeler skeins.							Southern two-ply warps, skeins, and cones.						
	14s.	20s.	30s.	12/2s.	14/2s.	20/2s.	30/2s.	40/2s.	50/2s.	60/2s.	30/2s.	36/2s.	40/2s.	50/2s.	60/2s.	70/2s.	80/2s.
1913.																	
August	94.5	94.8	98.2	95.3	95.9	95.3	95.1	95.5	103.6	101.9	97.8	96.0	95.4	94.9	98.2	97.9	98.9
September	94.5	94.8	98.2	96.2	96.8	96.2	98.1	95.5	103.6	101.9	97.8	96.0	96.7	94.9	99.2	99.5	98.9
October	106.2	105.9	106.4	105.6	103.7	106.0	104.6	108.3	106.2	104.0	106.1	104.0	103.1	104.9	104.1	102.0	103.1
November	106.2	105.9	106.4	108.0	106.0	110.3	108.4	111.5	106.2	104.0	106.1	106.7	104.3	104.9	104.1	102.0	103.1
December	102.6	102.4	103.3	104.7	103.7	104.7	104.6	106.7	103.6	103.0	106.1	106.7	104.3	104.9	103.1	102.0	101.7
1914.																	
January	100.7	100.7	98.8	103.3	99.1	100.4	100.8	101.9	98.4	101.9	100.6	101.3	101.8	102.7	101.2	101.1	101.7
February	100.7	100.7	98.8	100.9	100.5	99.6	100.0	101.3	97.9	98.7	97.8	96.0	96.7	97.1	94.4	97.9	98.9
March	100.7	100.7	101.8	100.9	101.4	100.4	100.8	101.3	97.9	98.7	99.2	98.7	99.2	99.3	99.2	99.5	98.9
April	100.7	100.7	101.8	98.6	99.1	99.6	100.8	98.7	97.9	98.7	99.2	98.7	99.2	99.3	99.2	99.5	98.9
May	98.9	99.0	97.3	98.6	99.1	96.2	96.2	95.5	97.9	98.7	96.4	98.7	99.2	99.3	99.2	99.5	98.9
June	96.3	96.5	95.1	93.9	96.8	95.3	95.1	92.4	92.7	94.5	96.4	98.7	99.2	99.3	99.2	99.5	98.9
July	96.3	96.5	95.1	93.9	96.8	95.3	95.1	92.4	92.7	94.5	96.4	98.7	99.2	99.3	99.2	99.5	98.9
August	96.3	96.5	95.1	93.9	96.8	95.3	95.1	92.4	92.7	94.5	96.4	98.7	99.2	99.3	96.3	99.5	98.9
September	89.0	89.6	89.1	78.9	79.7	78.2	82.9	84.4	82.9	84.9	93.6	96.0	96.7	96.0	92.4	93.0	93.2
October	85.3	86.1	86.0	78.9	79.7	78.2	82.9	84.4	82.9	84.9	93.6	96.0	96.7	96.0	92.4	93.0	93.2
November	78.8	80.9	81.5	68.1	66.8	65.4	69.6	75.8	75.1	75.4	83.8	82.7	84.0	85.9	90.5	93.0	93.9
December	78.8	80.9	81.5	68.1	66.8	68.4	69.6	75.8	75.1	75.4	83.8	82.7	84.0	85.9	88.5	93.0	91.1
1915.																	
January	76.9	78.1	79.0	63.4	64.5	64.1	66.5	72.6	75.1	75.4	83.8	82.7	81.4	84.8	85.6	87.3	84.0
February	76.9	78.1	79.0	65.7	66.8	69.7	70.3	75.8	78.5	75.4	78.2	77.3	76.3	82.6	77.8	87.3	85.5
March	76.9	78.1	79.0	65.7	66.8	68.4	70.3	75.8	78.5	75.4	79.6	80.0	82.7	83.7	82.7	84.0	87.6
April	78.8	79.9	80.5	68.1	69.1	68.4	70.3	82.8	80.3	78.6	81.0	81.3	85.2	85.9	87.5	85.6	89.7
May	78.8	79.9	80.5	75.1	76.0	76.9	76.0	86.0	82.9	80.7	81.0	81.3	86.5	88.2	87.5	88.9	91.1
June	78.8	79.9	80.5	75.1	76.0	76.9	76.0	86.0	82.9	80.7	81.0	81.3	89.1	91.5	90.5	88.9	91.1
July	80.6	81.6	87.5	69.5	69.1	71.8	71.5	81.2	88.1	84.9	81.0	81.3	88.5	90.0	90.5	87.3	89.0
August	80.6	81.6	87.5	69.5	69.1	71.8	71.5	81.2	88.1	84.9	81.0	81.3	88.5	90.0	90.5	87.3	89.0
September	80.6	81.6	87.5	69.5	69.1	71.8	71.5	81.2	88.1	84.9	81.0	81.3	88.5	90.0	90.5	87.3	89.0
October	89.7	90.3	97.3	89.2	92.2	93.2	93.2	97.1	94.6	90.2	96.4	100.0	99.2	102.2	99.2	93.0	91.1
November	97.1	97.2	103.3	93.9	98.2	96.2	100.8	111.5	101.0	95.5	107.5	110.7	108.1	109.4	108.0	100.3	97.5
December	97.1	97.2	103.3	93.9	98.2	96.2	100.8	111.5	101.0	95.5	107.5	110.7	108.1	109.4	109.9	102.8	98.9
1916.																	
January	100.0	100.0	105.8	95.3	98.2	98.3	105.7	114.6	115.3	111.5	107.5	110.7	108.1	111.6	111.9	103.6	100.3
February	100.0	100.0	105.8	102.3	105.1	101.7	111.4	121.0	117.9	115.7	117.3	117.3	113.2	118.3	118.7	110.9	103.8
March	108.1	112.8	117.0	102.3	105.1	101.7	113.3	124.2	121.8	115.7	117.3	117.3	114.5	123.9	126.5	115.8	114.4
April	104.4	106.9	107.9	102.3	105.1	103.8	115.2	124.2	126.9	123.1	118.7	124.0	124.7	128.3	127.4	119.1	120.1

May	104.4	106.9	107.9	107.0	107.4	109.0	120.9	132.2	141.2	135.9	124.3	130.7	134.9	142.9	138.1	137.8	130.6
June	104.4	106.9	107.9	107.0	107.4	109.0	120.9	132.2	141.2	135.9	124.3	130.7	134.9	142.9	138.1	137.8	130.6
July	122.7	126.7	129.2	166.7	168.2	168.8	173.0	179.9	173.6	164.5	138.3	145.3	143.8	129.5	151.8	145.2	144.8
August	122.7	126.7	129.2	173.7	175.1	175.2	186.3	199.0	187.8	175.2	142.5	150.7	150.1	154.0	157.6	150.9	146.6
September	133.7	133.7	132.2	173.7	175.1	188.0	205.3	208.6	200.8	181.5	149.4	157.3	164.1	165.2	165.4	155.0	151.8
October	150.2	149.3	148.9	173.7	175.1	188.0	205.3	219.7	226.7	207.0	156.4	170.7	170.5	175.2	173.2	168.0	168.1
November	170.3	168.4	167.2	211.3	216.6	226.5	231.9	246.8	239.6	217.6	163.4	170.7	175.6	183.0	180.0	168.0	166.0
December	183.2	184.0	179.3	248.8	253.5	267.1	275.7	278.7	252.6	228.2	188.5	204.0	203.6	200.9	207.2	187.6	183.6
1917.																	
January	190.5	187.5	188.4	248.8	253.5	267.1	275.7	278.7	252.6	228.2	192.7	210.7	201.0	204.2	199.4	191.7	180.1
February	183.2	180.6	173.3	248.8	253.5	260.7	270.0	246.8	226.7	207.0	183.0	197.3	.....	190.8	189.7	175.4	173.0
March	175.8	173.6	167.2	225.4	230.4	239.3	256.7	230.9	213.7	207.0	170.4	180.0	175.6	176.3	173.2	167.2	158.9
April	175.8	173.6	167.2	225.4	230.4	239.3	256.7	230.9	213.7	207.0	164.8	173.3	169.2	170.8	170.2	159.1	158.9
May	188.6	185.8	177.8	225.4	230.4	239.3	256.7	246.8	226.7	222.9	170.4	178.7	181.9	185.3	180.9	167.2	166.0
June	188.6	185.8	177.8	225.4	230.4	239.3	256.7	246.8	226.7	222.9	187.2	193.3	192.1	185.3	182.9	173.7	173.0
July	217.9	213.5	203.6	288.7	288.0	279.9	270.0	262.7	239.6	238.9	206.7	210.7	209.9	206.5	199.4	191.7	187.1
August	223.4	218.8	228.0	288.7	288.0	279.9	270.0	262.7	263.0	238.9	206.7	224.0	220.1	210.9	209.1	199 8	194.2
September	223.4	218.8	228.0	288.7	288.0	279.9	270.0	262.7	263.0	238.9	206.7	224.0	213.7	208.7	199.4	199.8	194.2
October	212.5	211.8	221.9	288.7	288.0	279.0	270.0	262.7	246.1	233.5	202.5	200.0	197.2	197.5	201.4	181.1	180.1
November	219.8	218.8	228.0	288.7	288.0	279.0	270.0	262.7	246 1	233.5	213.7	222.7	226.5	221.0	218.9	208.0	194.2
December	227.1	225.7	228.0	295.8	294.9	286.3	289.0	278.7	252.6	244.2	213.7	222.7	223.9	223.2	218.9	208.0	201.3
1918.																	
January	239.9	239.6	234.0	314.6	313.4	303.4	308.0	294.6	272.0	254.8	216.5	222.7	226.5	223.2	220.8	209.6	208.3
February	247.3	241.3	234.0	314.6	313.4	303.4	308.0	294.6	272.0	254.8	216.5	222.7	223.9	223.2	218.9	209.6	201.3
March	247.3	241.3	234.0	314.6	313.4	303.4	308.0	294.6	272.0	254.8	216.5	226.7	225.2	223.2	221.8	208.0	201.3
April	256.4	250.0	240.1	314.6	313.4	303.4	308.0	310.5	285.0	254.8	226.3	237.3	236.6	240.0	.....	210.4	201.3
May	276.6	269.1	264.4	342.7	345.6	346.2	346.0	326.4	291.5	260.1	231.8	241.3	239.2	242.2	231.5	216.2	208.3
June	276.6	269.1	264.4	342.7	345.6	346.2	346.0	326.4	291.5	260.1	231.8	241.3	239.2	242.2	231.5	216.2	208.3
July	280.2	274.3	270.5	342.7	345.6	346.2	346.0	326.4	291.5	260.1	241.6	248.0	245.5	247.8	238.3	224.3	215.4
August	280.2	274.3	270.5	342.7	345.6	346.2	346.0	326.4	291.5	260.1	241.6	248.0	245.5	247.8	238.3	224.3	215.4
September[1]	304.0	303.8	293.3	410.8	410.1	406.0	404 9	379.0	340.7	316.3	297.5	304.0	302.8	293.5	289.9	287.9	274.0
October[1]	304.0	303.8	293.3	410.8	410.1	406.0	404.9	379.0	340.7	316.3	297.5	304.0	302.8	293.5	289.9	287.9	274.0
November[1]	304.0	303.8	293.3	410.8	410.1	406.0	404.9	379.0	340.7	316.3	297.5	304.0	302.8	293.5	289.9	287.9	274.0
December[1]	304.0	303.8	293.3	410.8	410.1	406.0	404.9	379.0	340.7	316.3	297.5	304.0	302.8	293.5	289.9	287.9	274.0
1919.																	
January	267.4	267.4	258.4	354.5	352.5	337.6	346.0	326.4	291.5	260.1	244.4	246.7	250.6	251.1	238.3	232.5	222.5
February	234.4	236.1	234.0	316.9	315.7	303.4	315.6	310.5	278.5	249.5	237.4	229.3	226.5	215.4	199.4	208.0	201.3
March	219.8	218.8	209.7	272.3	271.9	267.1	275.7	286.6	246.1	288.7	216.5	209.3	201.0	198.7	180.0	195.8	187.1
April	223.4	225.7	215.8	272.3	271.9	267.1	275.7	262.7	239.6	217.6	203.9	197.3	197.2	188.6	184.8	175.4	173.0
May	230.8	229.2	228.0	295.8	299.5	303.4	308.0	289.8	278.5	249.5	203.9	202.7	201.0	198.7	189.7	183.5	183.6
June	245.4	253.5	252.3	361.5	359.4	346.2	346.0	342.4	304.4	281.3	244.4	261.3	273.5	262.3	257.8	248.8	254.2
July	296.7	291.7	288.8	361.5	359.4	346.2	370.7	382.2	343.3	323.8	314.2	326.7	324.4	329.2	316.1	305.9	310.7
August	311.4	305.6	297.9	380.3	382.5	380.3	408.7	406.1	375.6	350.3	335.2	346.7	356.2	368.3	364.8	354.8	342.5
September	318.7	316.0	326.7	460.1	463.1	459.4	484.8	469.7	433.9	398.1	349.2	373.3	381.7	385.0	374.5	363.0	356.6
October	318.7	316.0	326.7	460.1	463.1	459.4	484.8	469.7	433.9	398.1	356.1	373.3	381.7	396.2	394.0	375.2	356.6
November	353.5	355.9	381.5	528.2	541.5	566.2	636.9	644.9	621.8	562.6	488.8	546.7	559.8	574.8	593.4	571.0	635.6
December	402.9	408.0	417.9	575.1	587.6	609.0	665.4	684.7	660.6	626.3	502.8	553.3	591.6	597.1	622.6	607.7	653.2

[1] Prices fixed by War Industries Board.

TABLE 23.—*Index numbers of market prices of combed peeler cotton yarns, by months, from August, 1913, to December, 1920, inclusive*—Contd.

Year and month.	Single-combed peeler cones.			Two-ply combed peeler skeins.							Southern two-ply warps, skeins, and cones.						
	14s.	20s.	30s.	12/2s.	14/2s.	20/2s.	30/2s.	40/2s.	50/2s.	60/2s.	30/2s.	36/2s.	40/2s.	50/2s.	60/2s.	70/2s.	80/2s.
1920.																	
January	421.2	434.0	455.9	610.3	622.1	641.0	722.4	796.2	751.3	690.0	544.7	633.3	623.4	658.5	671.2	640.5	653.2
February	421.2	434.0	455.9	610.3	622.1	641.0	722.4	796.2	751.3	690.0	607.5	653.3	687.0	753.3	744.2	672.9	688.6
March	421.2	434.0	455.9	610.3	622.1	641.0	722.4	796.2	751.3	690.0	607.5	666.7	687.0	753.3	744.2	672.9	688.6
April	439.6	468.8	486.3	727.7	737.3	747.9	836.5	828.0	867.9	774.9	572.6	640.0	655.2	736.6	719.8	672.9	688.6
May	439.6	468.8	486.3	727.7	737.3	747.9	836.5	828.0	867.9	774.9	572.6	640.0	648.9	731.0	695.5	672.9	688.6
June	439.6	468.8	486.3	633.8	645.2	662.4	684.4	716.6	712.4	636.9	522.3	560.0	559.8	641.7	617.7	632.1	617.9
July	402.9	416.7	425.5	633.8	645.2	662.4	684.4	636.9	582.9	530.8	460.9	493.3	496.2	474.3	471.8	501.6	494.4
August	399.3	399.3	395.1	582.2	589.9	598.3	608.4	573.2	544.0	477.7	(1)	(1)	(1)	(1)	(1)	(1)	(1)
September	344.3	347.2	349.5	549.3	548.4	534.2	513.3	477.7	453.4	445.9	(1)	(1)	(1)	(1)	(1)	(1)	(1)
October	326.0	329.9	334.4	431.9	433.2	427.4	418.3	382.2	349.7	318.5	(1)	(1)	(1)	(1)	(1)	(1)	(1)
November	227.1	225.7	224.9	295.8	294.9	299.1	304.2	286.6	259.1	233.5	(1)	(1)	(1)	(1)	(1)	(1)	(1)
December	212.5	215.3	212.8	253.5	253.5	247.9	247.1	238.9	220.2	201.7	(1)	(1)	(1)	(1)	(1)	(1)	(1)

[1] Market nominal; no quotations.

EXHIBIT 4.

CONSOLIDATED PROFIT AND LOSS STATEMENT FOR COMBED COTTON YARN MANUFACTURERS, BY YEARS, 1914–1919.

Table 24 presents a consolidated profit and loss statement covering production, sales, cost of sales, and net profit on sales for all companies from which data used in the report were secured. The company groupings shown are those used in Chapters IV and V of the report. The figures shown for the 8-company and 11-company groups are those upon which the discussion of average costs, prices, and profits per pound found in Chapter IV is based. The last grouping, that of "All companies," is the one used in Chapter V in the discussion of earnings in relation to capital invested.

TABLE 24.—*Consolidated profit and loss statement for cotton-yarn manufacturers, 1914–1919, inclusive.*

[Groupings shown are those discussed in Chapters IV and V of the text.]

EIGHT IDENTICAL COMPANIES.

Year.	Net sales.		Raw cotton opened (less visible and invisible waste).		Process inventory variation.		Cost of raw cotton used.	
	Pounds.	Amount.	Pounds.	Amount.	Pounds.	Amount.	Pounds.	Amount.
1914..	6,463,333	$2,617,340.95	7,530,939	$1,587,094.03	[1] 45,951	$10,054.17	7,484,988	$1,597,148.20
1915..	9,892,212	3,540,361.08	9,401,431	1,726,216.77	19,075	[1] 11,429.15	9,420,506	1,714,787.62
1916..	10,442,500	5,031,219.92	9,677,651	2,370,958.53	[1] 44,639	[1] 32,761.43	9,633,012	2,338,197.10
1917..	9,181,284	6,587,953.87	9,134,317	3,176,721.33	63,688	[1] 16,336.99	9,198,005	3,160,384.34
1918..	8,878,877	7,889,771.61	9,000,928	4,272,014.48	[1] 25,955	[1] 16,531.07	8,974,973	4,255,483.41
1919..	8,762,869	8,815,194.11	8,715,647	4,807,666.04	[1] 101,887	[1] 148,724.32	8,613,760	4,658,941.72

ELEVEN IDENTICAL COMPANIES.

1914..	19,636,749	$7,351,206.93	23,425,083	$4,555,214.72	[1] 108,328	$23,208.08	23,316,755	$4,578,422.80
1919..	37,206,146	37,049,218.30	36,062,948	19,376,714.21	[1] 287,526	[1] 203,404.12	35,775,422	19,173,310.09

ALL COMPANIES.[2]

1914..	19,636,749	$7,351,206.93	23,425,083	$4,555,214.72	[1] 108,328	$23,208.08	23,316,755	$4,578,422.80
1915..	10,927,703	3,767,557.35	10,430,275	1,837,446.11	23,773	[1] 11,864.14	10,454,048	1,825,581.97
1916..	10,442,500	5,031,219.92	9,677,651	2,370,958.53	[1] 44,639	[1] 32,761.43	9,633,012	2,338,197.10
1917..	9,181,284	6,587,953.87	9,134,317	3,176,721.33	63,688	[1] 16,336.99	9,198,005	3,160,384.34
1918..	10,256,885	9,069,950.36	10,359,241	4,845,386.31	[1] 19,864	[1] 18,630.87	10,339,377	4,826,755.44
1919..	37,602,626	37,535,985.70	36,453,362	19,600,691.77	[1] 287,421	[1] 206,210.35	36,165,941	19,394,481.42

EIGHT IDENTICAL COMPANIES.

Year.	Manufacturing cost.				Mill cost of production.	Finished goods inventory variation.	
	Labor.	Depreciation.	Expense.	Total.		Pounds.	Amount.
1914..	$501,187.33	$106,411.19	$233,636.35	$841,234.87	$2,438,383.07	[1] 1,021,655	[1] $280,360.35
1915..	573,883.88	128,052.64	269,811.43	971,747.95	2,686,535.57	471,706	149,063.28
1916..	692,100.28	174,651.41	330,959.68	1,197,711.37	3,535,908.47	809,488	206,141.60
1917..	830,661.22	195,670.96	399,066.60	1,425,398.78	4,585,783.12	[1] 16,721	[1] 66,821.00
1918..	1,038,441.76	213,222.09	464,725.76	1,716,389.61	5,971,873.02	[1] 96,096	[1] 26,305.46
1919..	1,346,410.09	215,662.84	505,069.15	2,067,142.08	6,726,083.80	149,109	90,237.95

[1] Deduct.

[2] Includes the figures for the total number of companies secured for each year as follows: Eleven companies for 1914; 9 companies for 1915; 8 companies for 1916; 8 companies for 1917; 10 companies for 1918, and 12 companies for 1919.

TABLE 24.—*Consolidated profit and loss statement for cotton-yarn manufacturers, 1914–1919, inclusive*—Continued.

ELEVEN IDENTICAL COMPANIES.

Year.	Manufacturing cost.				Mill cost of production.	Finished goods inventory variation.	
	Labor.	Depreciation.	Expense.	Total.		Pounds.	Amount.
1914..	$1,559,564.06	$375,089.33	$665,736.22	$2,600,389.61	$7,178,812.41	[1] 3,680,006	[1] 1,055,966.93
1919..	5,311,901.70	578,923.68	2,113,316.42	8,004,141.80	27,177,451.89	1,430,724	653,604.58

ALL COMPANIES.[2]

1914..	$1,559,564.06	$375,089.33	$665,736.22	$2,600,389.61	$7,178,812.41	[1] 3,680,006	[1] $1,055,966.93
1915..	610,443.78	138,828.38	291,589.20	1,040,861.36	2,866,443.33	473,655	145,649.44
1916..	692,100.28	174,651.41	330,959.68	1,197,711.37	3,535,908.47	809,488	206,141.60
1917..	830,661.22	195,670.96	399,066.60	1,425,398.78	4,585,783.12	[1] 16,721	[1] 66,821.00
1918..	1,163,403.30	242,381.55	525,352.87	1,931,137.72	6,757,893.16	[1] 82,492	[1] 15,292.15
1919..	5,385,511.26	593,323.68	2,147,686.90	8,126,521.84	27,521,003.26	1,436,685	656,106.36

EIGHT IDENTICAL COMPANIES.

Year.	Cost of yarn sold.		General administrative expenses.	Selling expenses.	Cost of sales.	Net profit on sales.
	Pounds.	Amount.				
1914	6,463,333	$2,158,022.77	$56,618.38	$118,479.73	$2,333,120.88	$284,220.07
1915	9,892,212	2,835,598.85	58,468.18	144,055.82	3,038,122.85	502,238.23
1916	10,442,500	3,742,050.07	86,996.55	184,024.80	4,013,071.42	1,018,148.50
1917	9,181,284	4,518,962.12	108,838.55	257,723.24	4,885,523.91	1,702,429.96
1918	8,878,877	5,945,567.56	111,346.87	304,309.77	6,361,224.20	1,528,547.41
1919	8,762,869	6,816,321.75	142,152.01	323,425.94	7,281,899.70	1,533,294.41

ELEVEN IDENTICAL COMPANIES.

1914	19,636,749	$6,122,845.48	$131,490.26	$453,546.06	$6,707,881.80	$643,325.13
1919	37,206,146	27,831,056.47	333,086.03	1,899,667.12	30,063,809.62	6,985,408.68

ALL COMPANIES.[2]

1914	19,636,749	$6,122,845.48	$131,490.26	$453,546.06	$6,707,881.80	$643,325.13
1915	10,927,703	3,012,092.77	66,258.44	163,299.27	3,241,650.48	525,906.87
1916	10,442,500	3,742,050.07	86,996.55	184,024.80	4,013,071.42	1,018,148.50
1917	9,181,284	4,518,962.12	108,838.55	257,723.24	4,885,523.91	1,702,429.96
1918	10,256,885	6,742,601.01	128,937.44	365,820.90	7,237,359.35	1,832,591.01
1919	37,602,626	28,179,109.62	338,344.95	1,924,055.92	30,441,510.49	7,094,475.21

[1] Deduct.

[2] Includes the figures for the total number of companies secured for each year as follows: Eleven companies for 1914; 9 companies for 1915; 8 companies for 1916; 8 companies for 1917; 10 companies for 1918, and 12 companiss for 1919.

EXHIBIT 5.

NET EARNINGS, INVESTMENT, AND RATES OF RETURN ON INVESTMENT FOR COMBED COTTON-YARN MANUFACTURERS, BY YEARS, FROM 1914 TO 1919.

Table 25 presents a consolidated statement of net earnings, investment, and rate of return on investment by years for all companies whose reports were used as a basis for the discussion in Chapter V of this report. The results are shown for two groups of companies, the the first consisting of eight identical companies for which complete reports were secured for all six years from 1914 to 1919, inclusive, and the second showing the results for the total number of companies for which reports were secured in each year.

TABLE 25.—*Earnings, investment, and rate of return on investment for groups of cotton-yarn manufacturers, 1914–1919.*

The groupings shown are those used in the text of the report.]

Item.	1914	1915	1916	1917	1918	1919
	8 companies.	8 companies.	8 companies.	8 companies.	8 companies.	8 companies.
Net sales	$2,617,340.95	$3,540,361.08	$5,031,219.92	$6,587,953.87	$7,889,771.61	$8,815,194.11
Cost of sales	2,158,022.77	2,835,598.85	3,742,050.07	4,518,962.12	5,945,567.56	6,916,321.75
Gross profit on sales	459,318.18	704,762.23	1,289,169.85	2,068,991.75	1,944,204.05	1,998,872.36
Selling expense	118,479.73	144,055.82	184,024.80	257,723.24	304,309.77	323,425.94
General and administrative expense	56,618.38	58,468.18	86,996.55	108,838.55	111,346.87	142,152.01
Total	175,098.11	202,524.00	271,021.35	366,561.79	415,656.64	465,577.95
Net profit on sales	284,220.07	502,238.23	1,018,148.50	1,702,429.96	1,528,547.41	1,533,294.41
Other operating income, net	205.93	964.26	3,928.02	18,980.66	[1] 10,151.70	[1] 1,243.70
Net operating income	284,426.00	503,202.49	1,022,076.52	1,721,410.62	1,518,395.71	1,532,050.71
Interest received and discounts on sales, net	71,355.22	84,662.18	[1] 128,207.73	[1] 167,917.07	192,668.30	213,578.35
(A) Net operating income before charging interest	213,070.78	418,540.31	893,868.79	1,553,493.55	1,325,727.41	1,318,472.36
Interest on borrowed capital	67,387.85	82,581.73	59,358.91	61,790.74	69,130.35	95,998.74
(B) Net operating income after charging interest	145,682.93	335,958.58	834,509.88	1,491,702.81	1,256,597.06	1,222,473.62
Income from outside investments and cotton futures	[1] 40,367.83	472.00	70,277.16	6,706.03	14,671.64	65,839.88
Net income	105,315.10	336,430.58	904,787.04	1,498,408.84	1,271,268.70	1,288,313.50
(A) Invested capital, including borrowings, but excluding outside investments	3,247,325.43	3,467,637.74	3,493,572.71	4,112,750.49	4,987,942.95	5,131,319.79
(B) Invested capital, excluding borrowings and outside investments	2,196,458.67	2,243,860.36	2,482,160.98	3,177,108.21	4,012,010.77	3,743,284.40
Per cent of net operating income to invested capital (A)	6.6	12.1	25.6	37.8	26.6	25.7
Per cent of net operating income to invested capital (B)	6.6	15.0	33.6	47.0	31.3	32.7

[1] Deduct.

TABLE 25.—*Earnings, investment, and rate of return on investment for groups of cotton-yarn manufacturers, 1914–1919*—Continued.

From—	1914	1915	1916	1917	1918	1919	1919
	11 companies.	9 companies.	8 companies.	8 companies.	10 companies.	12 companies.	11 companies.
Net sales	$7,351,206.93	$3,767,557.35	$5,031,219.92	$6,587,953.87	$9,069,950.36	$37,535,985.70	$37,049,218.30
Cost of sales	6,122,845.48	3,012,092.77	3,742,050.07	4,518,962.12	6,742,601.01	28,179,108.62	27,831,056.47
Gross profit on sales	1,228,361.45	755,464.58	1,289,169.85	2,068,991.75	2,327,349.35	9,356,876.08	9,218,151.83
Selling expenses	453,546.06	163,299.27	184,024.80	257,723.24	365,820.90	1,924,055.92	1,899,667.12
General and administrative expense	131,490.26	66,258.44	86,996.55	108,838.55	128,937.44	338,344.95	333,086.03
Total	585,036.32	229,557.71	271,021.35	366,561.79	494,758.34	2,262,400.87	2,232,753.15
Net profit on sales	643,325.13	525,906.87	1,018,148.50	1,702,429.96	1,832,591.01	7,094,475.21	6,985,408.68
Other operating income, net	205.93	2,612.88	3,928.02	18,980.66	[1] 11,422.45	37,147.35	37,147.35
Net operating income	643,531.06	528,519.75	1,022,076.52	1,721,410.62	1,821,168.56	7,131,622.56	7,022,556.03
Interest received and discounts on sales, net	[1] 161,499.91	[1] 89,256.11	[1] 128,207.73	[1] 167,917.07	[1] 217,321.77	[1] 686,845.84	[1] 676,482.27
(A) Net operating income before charging interest	482,031.15	439,263.64	893,868.79	1,553,493.55	1,603,846.79	6,444,776.72	6,346,073.76
Interest on borrowed capital	239,281.41	83,507.34	59,358.91	61,790.74	71,356.41	459,784.03	459,784.03
(B) Net operating income after charging interest	242,749.74	355,756.30	834,509.88	1,491,702.81	1,532,490.38	5,984,992.69	5,886,289.73
Income from outside investments and cotton futures	[1] 39,644.02	[1] 574.43	70,277.16	6,706.03	16,620.65	126,664.44	126,664.44
Net income	203,105.72	355,181.87	904,787.04	1,498,408.84	1,549,111.03	6,111,657.13	6,012,954.17
(A) Invested capital, including borrowings, but excluding outside investments	11,577,891.74	3,811,135.59	3,493,572.71	4,112,750.49	5,677,171.92	20,768,364.81	20,465,133.14
(B) Invested capital, excluding borrowings and outside investments	7,528,160.40	2,532,774.88	2,482,160.98	3,177,108.21	4,631,152.38	13,793,640.92	13,490,409.25
Per cent of net operating income to invested capital (A)	4.2	11.5	25.6	37.8	28.2	31.0	34.1
Per cent of net operating income to invested capital (B)	3.2	14.0	33.6	47.0	33.1	43.4	43.6

[1] Deduct.

EXHIBIT 6.

COSTS, BY COUNTS, OF CERTAIN SELECTED YARNS.

As explained on page 51 of the body of the report, the accurate determination of yarn costs by counts necessitates the keeping of complete records by departments throughout the mill covering raw material, waste, goods in process, labor, manufacturing expense, and other items, all of which involves considerable expense. Few of the combed yarn companies visited kept departmental costs in detail. In fact, some of them made little or no attempt to keep their mill costs by departments. Consequently, although accurate records of total production, costs, sales, and profits were kept in recent years by all companies visited, but few attempted to figure their costs by counts.

Some of the manufacturers approximate their conversion costs by counts by computing the average conversion cost of the average count produced and adding thereto a certain percentage of the average conversion cost for each count finer than the average, and subtracting from the cost of the average count a similar percentage for each count coarser than the average. Since purely mechanical factors affecting rates of production throughout the mill make it impossible to determine a single percentage differential that is applicable to a wide range of counts, and since the percentages used are based more or less on estimate or at least on test runs of short duration made from time to time, there is always considerable doubt as to whether the percentages used truly express the differences in costs actually existing over any considerable range of counts. If the percentages do not accurately express the differences in costs as between counts, it will be found utterly impossible to reverse the process, and by using the poundages produced and estimated conversion costs, arrive at the total mill expense shown in the company's profit and loss statement.

For purposes of price determination manufacturers generally make up cost estimates from time to time. These estimates are based on current mill costs and the market price of cotton at the time the estimates are made. For those companies that do not attempt to keep their costs by departments such estimates are little more than the superintendent's best guess as to what it will cost to produce a given count of a given type of yarn at the time. For those companies having departmental cost systems, the estimates have a better basis than for those not having such records. In neither case, however, can the costs be checked into the profit and loss statements without adjustments. Consequently they are of little value for comparison with prices actually realized over any considerable period of time.

In an effort to secure costs by counts for all companies that would check into the profit and loss statements of the companies and would also be computed on a uniform basis rendering them comparable, it was decided to apportion the total mill cost as obtained for each company as accurately as possible to the various poundages of different counts produced in each year on the basis of machine rates of production. As the rate of production for a given count varies in different departments of the mill, the first step for such apportionment was to secure the total mill costs by departments of each com-

pany visited. This was done in the field by the Commission's agents with the advice and assistance of officials of the companies.

The ideal basis for apportionment of costs would be the actual productions attained on various machines in the daily operation of the mill. Mill records, however, were found inadequate to yield such data. Consequently after conferences with a number of practical mill men it was decided that no better basis was available than the standard machine production rates published by cotton yarn machinery manufacturers, such as the Whitin Machine Co., the Saco Lowell Shops, and the Draper Corporation.

The method adopted is that of computing the total number of days required in each department for a single spindle to produce the total production of the mill, assuming that the rate of production for each count of yarn is that shown in the machine table used. Four steps are involved in this computation for each count in each process for which apportionment is made. The procedure followed in estimating spinning cost is typical of the method used in all other departments in which apportionment was made. First, the total production of each count (and ply in each subsequent process) was divided by the standard machine production per spindle per day to ascertain the number of spindle days required to make the poundage of each count produced. Second, the total number of of spindle days for all sizes was ascertained by adding together the spindle days for all counts. Next the total manufacturing expense for the department was apportioned to various counts produced on the ratio of the total number of spindle days required to spin the quantity made of each count to the total number of spindle days required to spin the year's production of all counts. Finally, the apportionments of costs obtained by the third step were divided by their corresponding poundages to obtain the average cost per pound for each count produced.

In the early stages of manufacture, different manufacturers use different combinations of weights per unit length of laps, sliver, slubbing, and roving in the production of the same count of yarn.[1] The production rate for each process depends on two factors—the weight per unit length of material delivered and the rate at which the various machines are run. Of these two factors the most important from the viewpoint of production rates for different counts is the weight per unit length. Therefore, in order to apportion costs with any degree of accuracy, it becomes necessary to know in detail the weights used for each process. Furthermore, it frequently happens that one manufacturer will use two roving frames in the production of a given count, while another will use three, or one will use three and another four. This information as to weight per unit length of material after each process, together with the exact processes used, is known in the industry as the "yarn organization."

An attempt to secure in detail the yarn organizations used by the companies visited for the counts produced in all years from 1914 to 1919 was not entirely successful; hence, in estimating costs, the mill expenses from opening to and including slubbing and roving have been combined and an average cost per pound computed.

[1] See article by W. A. Graham Clark, special expert for the United States Tariff Commission, published in the March, 1912, issue of "Cotton."

For the average mill this procedure, as applied to the processes from opening to drawing, introduces only a small error in the total cost, for the reason that mills generally specialize on a comparatively limited range of counts that are made from laps and sliver that do not differ greatly in weight per unit of length. For slubbing and roving, however, the variation in cost is greater, but owing to lack of detailed information as to the yarn organization used it was impossible to make the desired apportionments for all companies. Consequently, to avoid apportioning some companies on one basis and others on another, the average cost per pound has been used for all companies for all mill processes prior to spinning.

From the study of a few companies for which costs prior to spinning could be computed in both ways, it appears that the use of average cost for slubbing and roving makes the estimated total cost for coarse yarns from 3 to 4 per cent higher than those in which apportionment on the basis of yarn organization was used. Conversely, the estimated cost for the finer counts using the average cost for slubbing and roving were about 3½ per cent less than those in which apportionment was used.

Except in the manufacture of coarse tire yarns, in which the longest staples may be used, it is the general practice of manufacturers to use the longest staple, and therefore the highest priced cotton, in the manufacture of the finest counts. For the companies included in this report it was possible to segregate cotton purchases by kinds of cotton purchased, i. e., peeler, sea island, Egyptian, etc., but in only a few cases was it possible to allocate the cotton of each kind used by lengths of staples to the counts of yarn produced. It was therefore found necessary to use the average cost of each kind of cotton in the computation of costs by counts. This introduces an error in the computation of costs by counts that is small for companies making a narrow range of counts and therefore using practically a single length of staple, but larger for companies making a wide range of counts and therefore using several lengths of staple. The percentage of error in total cost, therefore, varies considerably for companies making different ranges of counts, but is probably on the average not over 5 per cent.

Two items of expense, namely, general and administrative and packing and selling expenses, can not be apportioned on the basis of machine rates. In the costs by counts computed by the Commission these expenses are apportioned respectively on the following basis. General and administrative expenses are apportioned on the basis of the ratio that the total mill cost of production for the quantity of each count, ply, and method, of put-up made bears to the total mill cost shown in the profit and loss sheet for the period. Packing and selling expenses are apportioned on the basis of the ratio that the value of sales of the particular count, ply, and method of put-up bears to the total value of yarns sold during the period.

The final assembling of costs by counts is accomplished by adding together for each count, ply, and method of put-up, the average cost of cotton, the average manufacturing expense per pound up to spinning, the apportioned expenses for spinning, and the apportioned expenses by counts and plys for processes subsequent to spinning. The sum of these items represents the estimated mill cost of production. When to this are added the apportioned items for general

and administrative expense, and packing and selling expense, an estimated total cost differing from cost of sales only by the omission of variation in finished yarn inventory is obtained. It was found necessary to omit inventory variation because mills keep their inventories only in total and not by counts, plys, etc. This total cost per pound may be compared directly to the average price realized per pound for the count, ply, and method of put-up during the period to obtain an estimated profit per pound for the period.

For instance, the total mill cost of production and general and selling expense per pound for 40/2s skeins is obtained by adding together the average cost per pound for cotton, the average manufacturing expense per pound up to spinning, the apportioned costs for spinning and spooling 40s single yarn, twisting and reeling 40/2s, and finally the apportioned figures for general and administrative and packing and selling.

The method of computing estimated costs outlined above has been carried out for each company for all counts, plys, and method of market put-up by years from 1914 to 1919, inclusive. It is recognized that these estimated costs are based on theoretical productions rather than on the actual productions attained by the mills, and that the use of average costs for all processes up to spinning and the use of average cotton cost tends to make the costs of companies making a fairly wide range of counts somewhat higher than they should be for the coarser counts, and somewhat lower for the finer counts. Had it been possible to secure accurate costs by counts directly from the books of all mills visited such costs would have been preferable, but since they were unobtainable, estimates made up in the manner outlined above are presented for certain counts, plys, and methods of put-up. These results may be of interest to the industry, as indicating the possibility and desirability of computing costs more in detail than is generally done by many mills for the purpose of showing the trend of costs in relation to prices realized as a basis for intelligently directing the activity of mills to those counts and methods of put-up that can be most efficiently produced, as well as for the purpose of ascertaining what counts are produced at relatively high costs that might be reduced by changes in yarn organizations used.

ESTIMATED COSTS IN RELATION TO PRICES.—The following table shows for selected counts of combed peeler yarns the weighted average total cost including general and administrative and packing and selling expenses, the weighted average selling price, and the net profit based on the average cost and average selling price. In this table cost of mill production is shown divided into two parts, namely, cotton cost and conversion cost as well as in total. The costs shown are estimated as outlined above. Costs, prices, and profits are shown for selected counts only put up in single cones, two-ply cones, two-ply skeins, and two-ply warps. The number of companies shown for each classification varies from year to year, but in each year includes all the companies from which reports were secured showing the manufacture and sale of the count put up in the manner shown.

TABLE 26.—*Costs, prices, and profits per pound of combed yarn manufacturers for combed peeler cotton yarns, by counts, 1914–1919.*

[Selling prices shown are weighted average prices per pound for each count as shown by the books of the companies. Costs shown are weighted average costs per pound based on average cost of peeler cotton in yarns, average mill cost for processes up to spinning, mill expense for spinning and subsequent processes, apportioned by counts on the basis of production per spindle per day as described in the text, general and administrative expense apportioned on the basis of mill cost of production and selling and shipping expenses apportioned on the basis of value of sales.]

Count and ply.	Year.	Number of companies.	Average cotton cost.	Estimated conversion cost.	General and administrative expense.	Selling and shipping expense.	Total cost.	Average selling price.	Net operating profit.
Cones:			*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*
18 single	1914	4	16.30	6.13	0.37	1.77	24.57	27.45	2.88
	1915	2	11.84	4.87	.49	2.19	19.39	23.28	3.89
	1916	2	17.72	5.19	.74	1.08	24.73	29.62	4.89
	1917	2	23.90	6.83	.88	2.04	33.65	49.27	15.62
	1918	3	38.70	10.66	1.04	2.90	53.30	72.62	19.32
	1919	6	44.75	13.17	.66	3.87	62.45	75.54	13.09
24 single	1914	5	17.23	8.82	.41	2.20	28.66	32.36	3.70
	1915	3	13.52	9.50	.51	.63	24.16	27.43	3.27
	1916	1	21.48	10.82	1.11	.20	33.61	44.66	11.05
	1917	2	24.71	7.68	.92	2.05	35.36	48.88	13.52
	1918	2	39.77	15.90	1.24	1.51	58.42	75.75	17.33
	1919	4	47.42	19.78	.62	4.44	72.26	84.01	11.75
30 single	1914	6	17.21	10.34	.47	2.16	30.18	34.55	4.37
	1915	4	15.13	11.21	.60	.78	27.72	29.60	1.88
	1916	2	22.78	16.05	.93	.45	40.21	42.97	2.76
	1917	2	41.01	17.65	.97	.66	51.30	46.44	[1] 4.86
	1918	3	44.88	18.92	1.15	1.39	66.34	79.01	12.67
	1919	5	47.77	22.94	.75	5.01	76.47	88.30	11.83
36 single	1914	5	21.65	13.35	.58	2.29	37.87	38.00	.13
	1915	4	21.10	13.84	.79	.97	36.70	33.33	[1] 3.37
	1916	3	25.83	18.01	1.12	.87	45.83	44.62	[1] 1.21
	1917	2	41.77	20.36	1.35	1.00	64.48	72.72	8.24
	1918	3	42.86	20.55	1.08	1.37	65.86	82.36	16.50
	1919	4	51.98	24.92	1.07	3.96	81.93	105.83	23.90
50 single	1914	3	22.96	16.21	.87	2.21	42.25	48.41	6.16
	1915	5	19.32	12.11	.78	1.45	33.66	44.02	10.36
	1916	4	24.96	15.16	1.35	1.33	42.80	51.28	8.48
	1917	4	38.23	18.87	1.78	2.56	61.44	80.76	19.32
	1918	4	53.59	29.49	1.78	3.27	88.13	104.44	16.31
	1919	5	55.74	32.67	1.45	5.45	95.31	124.07	28.76
60 single	1914	5	19.91	17.24	.83	2.52	40.50	55.00	14.50
	1915	5	20.15	16.77	.92	1.57	39.41	47.50	8.09
	1916	3	28.60	21.51	1.71	1.42	53.24	67.64	14.40
	1917	6	38.69	23.86	1.83	3.43	67.81	86.46	18.65
	1918	5	53.36	31.41	1.89	4.18	90.84	119.33	28.49
	1919	7	55.12	34.35	1.49	5.79	96.75	130.15	33.40
36/2	1914	5	24.16	15.16	1.93	2.52	43.77	42.58	[1] 1.19
	1915	3	17.23	14.18	.60	.99	33.00	37.43	4.43
	1916	2	18.89	17.54	.73	.59	37.75	56.32	18.57
	1917	2	37.89	14.42	1.22	1.78	55.31	88.00	32.69
	1918	2	48.64	23.99	1.09	2.64	76.36	102.89	26.53
	1919	4	55.67	30.09	1.18	.80	87.74	112.19	24.45
40/2	1914	5	24.52	12.61	.77	1.74	39.64	41.05	1.41
	1915	4	18.47	10.90	.61	.93	30.91	35.65	4.74
	1916	4	28.32	15.36	1.43	1.55	46.66	57.22	10.56
	1917	1	42.01	28.58	2.42	.97	73.98	85.03	11.05
	1918	1	53.16	35.88	.....	.....	89.04	114.66	25.62
	1919	3	56.05	32.02	.98	6.00	95.05	121.40	26.35
50/2	1914	6	22.48	14.40	.83	2.13	39.84	43.63	3.79
	1915	5	18.68	12.35	.77	1.64	33.44	43.66	10.22
	1916	4	23.02	13.61	1.23	1.49	39.35	57.18	17.83
	1917	3	40.33	17.43	1.70	3.71	63.17	83.18	20.01
	1918	5	53.80	23.53	1.67	5.47	84.47	106.24	21.77
	1919	7	55.19	36.24	1.51	5.70	98.64	128.35	29.71
60/2	1914	6	23.81	20.81	1.04	2.54	48.20	52.17	3.77
	1915	6	19.13	14.90	.84	1.84	36.71	48.17	11.46
	1916	6	26.51	16.11	.85	2.14	44.61	58.44	13.83
	1917	7	42.10	18.65	1.64	5.03	67.42	97.74	30.32
	1918	5	53.53	25.57	1.80	5.97	86.87	113.30	26.43
	1919	8	56.54	36.41	1.58	5.73	100.26	127.89	27.63

[1] Loss.

TABLE 26.—*Costs, prices, and profits per pound, of combed yarn manufacturers for combed peeler cotton yarns, by counts, 1914–1919*—Continued.

Count and ply.	Year.	Number of companies.	Average cotton cost.	Estimated conversion cost.	General and administrative expense.	Selling and shipping expense.	Total cost.	Average selling price.	Net operating profit.
Cones—Continued.			*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*
70/2	1914	4	22.84	20.21	1.20	2.32	46.57	61.48	14.91
	1915	4	19.23	17.27	.91	2.01	39.42	59.76	20.34
	1916	3	27.71	26.00	1.73	2.08	57.52	77.62	20.10
	1917	2	45.01	21.49	2.34	2.39	71.23	114.61	43.38
	1918	2	54.13	29.71	2.33	6.01	92.18	126.14	33.96
	1919	4	54.16	42.52	1.60	7.89	106.17	183.25	77.08
Skeins:									
36/2	1914	4	23.57	10.83	.76	1.20	36.36	42.37	6.01
	1915	4	19.81	10.27	.63	1.16	31.87	44.09	12.22
	1916	4	26.85	13.44	1.02	1.16	42.47	50.73	8.26
	1917	3	43.82	14.27	1.50	1.34	60.93	74.09	13.16
	1918	3	53.16	28.48	1.39	1.65	84.68	91.91	7.23
	1919	4	57.21	31.02	1.22	3.93	93.38	105.03	11.65
40/2	1914	4	24.24	11.55	.81	2.12	38.72	46.34	7.62
	1915	3	19.86	10.59	.74	1.34	32.53	44.55	12.02
	1916	4	28.01	12.77	1.05	1.24	43.07	54.88	11.81
	1917	3	43.63	15.00	1.86	2.65	63.14	83.14	20.00
	1918	3	53.44	19.29	1.35	1.81	75.89	98.80	22.91
	1919	5	54.99	31.07	1.29	4.76	92.11	123.74	31.63
50/2	1914	6	22.93	16.69	.90	2.03	42.55	43.60	1.05
	1915	6	21.83	12.69	.86	1.62	37.00	42.68	5.68
	1916	3	27.57	13.88	1.38	1.82	44.65	63.52	18.87
	1917	5	38.85	16.97	1.62	3.32	60.76	86.92	26.16
	1918	6	53.41	24.02	1.65	4.98	84.06	102.92	18.86
	1919	6	55.08	32.30	2.31	4.06	93.75	114.42	20.67
60/2	1914	7	23.53	22.44	1.83	2.65	50.45	54.96	4.51
	1915	6	21.82	15.31	.92	1.80	39.85	47.75	7.90
	1916	7	25.87	15.12	1.04	1.80	43.83	63.36	19.53
	1917	5	39.79	19.44	1.60	4.52	65.34	87.87	22.53
	1918	7	53.75	27.12	1.74	4.45	87.06	115.59	28.53
	1919	7	53.97	39.32	1.55	5.72	100.56	128.71	28.15
80/2	1914	4	24.79	21.74	1.06	3.18	50.77	67.42	16.65
	1915	3	24.03	20.80	1.07	2.03	47.93	65.00	17.07
	1916	3	30.48	19.84	1.66	2.18	54.16	83.84	29.68
	1917	2	45.48	25.10	1.58	9.33	81.49	146.05	64.56
	1918	4	52.84	34.85	2.10	5.25	95.04	163.98	68.84
	1919	5	61.54	47.56	1.83	7.82	118.75	179.98	61.23
Warps:									
40/2	1914	4	26.49	13.34	.89	1.31	42.03	46.49	4.46
	1915	3	19.86	10.68	.74	1.14	32.42	37.85	5.43
	1916	3	32.58	11.80	1.45	1.63	47.46	60.25	12.79
	1917	3	45.84	16.98	1.99	2.68	67.49	84.81	17.32
	1918	1	53.16	37.77	1.84	.85	93.62	131.93	38.31
	1919	2	55.09	31.20	.97	5.96	93.22	121.40	28.18
50/2	1914	5	23.06	13.89	.84	2.03	39.82	41.21	1.39
	1915	4	19.26	11.57	.80	2.24	33.87	41.63	7.76
	1916	5	23.44	15.66	.75	2.01	41.86	55.72	13.86
	1917	4	40.25	16.15	1.18	2.74	60.32	80.00	19.68
	1918	6	51.82	26.03	1.33	3.95	83.13	102.14	19.01
	1919	6	56.80	32.19	1.42	4.72	95.13	105.35	10.22
60/2	1914	7	20.40	16.61	1.48	2.46	40.95	50.57	19.62
	1915	5	16.63	14.64	.79	2.50	34.56	45.47	10.91
	1916	5	24.42	15.37	.97	3.20	43.96	62.20	18.24
	1917	5	38.24	20.93	1.60	4.58	65.35	89.09	23.74
	1918	6	53.32	28.90	1.82	5.86	89.90	110.94	21.04
	1919	8	55.59	34.98	1.54	5.51	97.62	122.67	25.05

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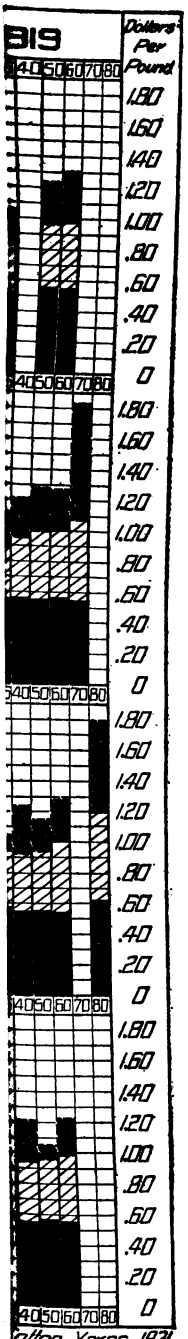

Cotton Yarns 1927

In order to show clearly the trend of costs, prices, and profits for peeler cotton yarns shown in the preceding table, Chart X (opposite) has been prepared. In this chart all the items shown in the table are plotted on the same scale for each count, ply, and method of put-up. The graphs are arranged in such a manner as to enable the reader to make comparisons across the chart for different counts put up in the same manner, and down the chart for the same count put up in different ways. In addition, the chart shows the increases occurring by years in cotton cost, total cost, including conversion cost and general and selling expenses, sales realization, and profit per pound for each count and method of put-up shown.

The chart shows that for each count and method of put-up the total cost made up of cotton cost, conversion cost, and general and selling expenses tended to decrease in 1915, the greater part of the decrease being in cotton. Prices failed to decrease quite as much as the total cost, and the profits therefore tended to increase. From 1915 to 1919 the total cost increased year by year, the greater part of the increase being in cotton. Prices, however, generally advanced more rapidly than total costs, thereby resulting in larger profits in the later years of the period. Profits per pound increased much more for fine than for coarse yarns, and more for ply than for single yarns. These tendencies manifest themselves in differing degrees for different counts and different methods of put-up, but naturally show for many counts the same general trends of costs, prices, and profits that were shown by average, costs, prices, and profits for all counts discussed in Chapter IV.

Exceptions to the general trend are to be found in a number of cases. For instance, exceptions to the general statement that profits were greater in 1915 than in 1914 are found in the lessened profits shown for 24s, 30s, and 60s, and the loss on 36s, single cones. An exception to the generally high profits of 1917 is seen in 36s, single cones. Exceptions to the generally increased total cost in 1919 as compared to 1918 are found in 40/2s cones and 40/2s warps. An exception to the generally higher prices in 1919 appears for 40/2s warps, while 50/2s warps presents an exception to the generally higher profits in 1919. Each of these exceptions is a more or less isolated case, explainable on the basis of special conditions, and, taken as a whole, the exceptions, when all graphs are considered, are lost in the pronounced general trend for all yarn groups.

Further comparisons of data contained in Table 10 are shown in Chart XI (opposite), in which the graphs are so arranged as to show comparisons of the costs, prices, and profits for different counts of yarn in each year. Reading from left to right, the chart shows the yearly comparisons for different counts put up in the same manner, while reading downward it shows comparisons for different methods of market put-up.

For single and two ply cones and two-ply skeins, the methods of put-up for which the widest ranges of counts are shown, certain well-defined characteristic differences in costs, prices, and margins for different counts are shown year by year. In each year cotton cost shows a fairly well-defined tendency to increase with the count of yarn, and the profit shows the same tendency. Each of these tendencies is normal. Higher cotton cost is due to the use of longer staples in the production of the finer counts. Other costs are greater

on account of the greater length of time required to produce the finer counts, and, finally, a larger profit per pound on fine yarns is normal, due to the fact that without it the earning power of fine-yarn mills producing small poundages per spindle would be far less than that of coarse-yarn mills obtaining larger productions per spindle. If a relatively low profit per pound on fine yarns should continue over any considerable period of time, it would tend to result in a shifting by fine-yarn mills to the production of coarser counts, at least until such time as the market condition should right itself.

The two-ply warp group for which only three counts are shown fails to follow the normal trend in almost every respect. This is probably due to the small number of counts shown. Other exceptions appear in the other groups, but they are generally isolated and do not greatly disturb the general relationships of costs, prices, and margins for the range of counts as a whole.

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